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AMERICAN PHARMACEUTICAL ASSOCIATION

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THE SIXTY-NINTH ANNUAL CONVENTION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN NEW ORLEANS, LA., SEPTEMBER, 1921

The 1921 meetings of the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy will also be held in New Orleans during Convention Week

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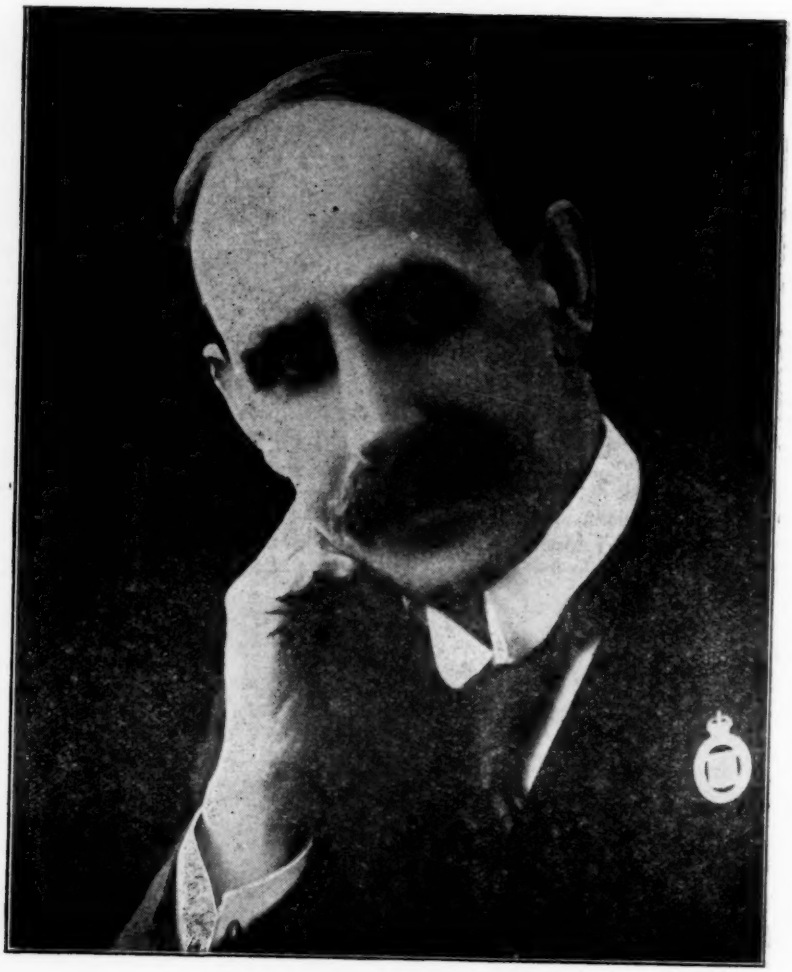

DAVID HOOPER

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. IX JUNE 1920 NO. 6

DAVID HOOPER.

David Hooper was born at Redhill, Surrey, May 1, 1858, and received his early education at a private school at Chelmsford, Essex. In 1873 he was apprenticed for five years in a London pharmacy, and during the first year passed his preliminary examination. On leaving London he went to Cambridge and Clifton, and during his spare time he took up the study of botany by attending lectures, and with the use of "Babington's Manual" he made a collection of seven hundred British plants, which was awarded, in 1878, the Bronze Herbarium Medal of the Pharmaceutical Society. Next year he entered the School of Pharmacy, and succeeded in carrying off the silver medals in botany, materia medica and practical chemistry, in addition to the Pereira Medal, the blue ribbon of pharmacy. His first paper read before the Students' Association, "The Medicinal Flora of Afghanistan," indicated the direction of his future life-work, and a subsequent paper on the "Coffee-leaf Disease of Ceylon" showed a predilection for a life in the East.

After serving in the laboratories of Messrs. Corbyn, Stacey & Co., London, where for a time Mr. W. A. H. Naylor was his colleague, he became chemist to Messrs. Southall Bros. & Barclay of Birmingham. Responsive to his application and credentials he was elected quinologist to the Madras Government. A clause in the agreement with the Secretary of State was to the effect that the selected candidate should receive special training in quinology in Holland before leaving for India. Mr. Hooper accordingly spent the summer of 1884 at the Hague, in the laboratory of Dr. W. F. Koppeschar, from whom and the veteran Dutch quinologist, the late Dr. J. E. De Vry, he acquired a knowledge of the latest methods of cinchona bark analysis.

Arriving in India in October (1884), he soon plunged into the various problems of cinchonology and his work in that connection is a splendid record of achievement. Every phase of the subject was studied and experiments were made relative to the effect of various fertilizers on the growth of the trees; the aspect and elevation were investigated; the values of trees under different conditions of age,

and composition of the alkaloids were determined. The final results were that cinchona culture received helpful encouragement, and a quinine factory was established in India.

Further investigations by the subject of this sketch were also concerned with the materia medica of India and, in coöperation with Dr. Dymock of Bombay, was productive of the comprehensive work, "Pharmacographia Indica," a compendium of three volumes and an appendix, completed in 1893. About this time Mr. Hooper made the chemical examinations of ghanga, bhang and charras for the Indian Hemp Drugs Commission. These Indian Hemp drugs were collected from various provinces and the analyses are published with other data in the reports of the Commission. While in South India he was consulting chemist for the planting districts, where cinchona, tea and coffee were cultivated, and for two years he was also examiner in chemistry to the University of Madras.

In 1896 he was appointed Reporter on Economic Products and in the next year Curator of the Industrial Section of the Indian Museum. His reports during the succeeding seventeen years are replete with scientific advice constantly requisitioned by planters, merchants and officials. Mr. Hooper became Economic Botanist to the Government of India in 1912 and made a number of expeditions to the Tinnevelly Hills, Garo Hills, Karachi and the Sundarbans, collecting plants and drugs. In January of 1914 the first Indian Science Congress was held in Calcutta, of which Mr. Hooper was secretary and treasurer. It was attended by leading scientists and proved so successful that similar annual meetings have since been held, in turn, in the principal cities of the Empire.

After 30 years' residence in the East, Mr. Hooper retired and, after a short holiday, paid a visit to Canada and the United States, when he was honored by McMaster University of Toronto with the degree of LL.D.

The subject of this sketch was elected to honorary membership in the American Pharmaceutical Association in 1889. He was awarded the Hanbury Gold Medal in 1907 for research into the chemistry and natural history of drugs; it is interesting to observe that the former Anglo-Indian recipients of this honor, Dr. Dymock (1881) and Sir George Watt (1901) were co-workers with Mr. Hooper in materia medica. In 1916 he was elected president of the British Pharmaceutical Conference; the subject of his address was "The Medicinal Resources of the British Empire."

When the war cloud burst in 1914, Dr. Hooper offered his services to the Ministry of Munition, Department of Explosive Supply, and was appointed chemist-in-charge of the nitro-glycerin laboratory of the factory at Gretna, and here he remained until the armistice was signed in 1918. E. G. E.

EDITORIAL

THE UNITED STATES PHARMACOPOEIAL REVISION.

ONE HUNDRED years of history, tradition and experience serve as a background for the new United States Pharmacopoeia, and establish a standard and precedent for the recently-elected Committee. That some of this experience was not obsolete, but capable of teaching valuable lessons, was evidenced by the comparative ease with which the new Committee of Revision entered upon its duties and the unprecedented accomplishments resulting from the sessions held in Washington immediately after the close of the Convention.

In these sessions, after the election of the Chairman, which is a by-law requirement, and heretofore the chief purpose of the first session, it was found possible to secure from each member an expression of preference for sub-committee activity, to appoint the fifteen sub-committees and to secure their election by the General Committee.

During a recess of the main Committee the sub-committees met, selected their Chairmen and discussed methods of work. These fifteen Chairmen thus became automatically the nominees for election to the Executive Committee, and upon appointment by the Chairman were elected by the General Committee.

The organization being thus perfected, the "business methods" under which the work of the last revision was conducted were placed before the Committee and adopted with slight modifications, and then the Secretary of the Board of Trustees had the opportunity to explain the rules of finance.

An opportunity was then given for an extended discussion of the important question of admission and deletions and tentative decisions were reached which should place this vital subject upon a correct and scientific basis. The Sub-committee on Scope also held a session and agreed upon over two hundred titles for admission, upon which there were no dissenting votes, and there is, therefore, an extensive list of titles ready for immediate consideration by the Sub-committees.

The recommendation presented to the Convention that personal conferences between Executive Committee members or Sub-committee members be authorized, whenever it was found that such a conference would materially clarify the situation or shorten the revision, met with the approval of the Board of Trustees and Revision Committee, and makes a notable advance in revision methods. In fact, the value of personal conferences in the U. S. P. revision was demonstrated by these first sessions of the Committee, since they permit a thorough discussion, prompt decisions and, above all, give that opportunity for personal contact and

acquaintanceship which lessens many future misunderstandings. The selection of a Committee which will work in harmony and for a Pharmacopoeia of distinction, with this propitious beginning, promises well for a thorough and prompt revision.

E. FULLERTON COOK.

LOYALTY AND IDEALS FUNDAMENTAL ESSENTIALS FOR GROWTH AND STRENGTH OF ASSOCIATIONS.

LOYALTY to pharmacy and to associations of pharmacists makes for their success and secures the respect of those served. Departure from loyalty signifies lack of coöperation and coördination and lays the organization open to attack and weakens the bonds which link the members of an association, and the aptitude develops for questioning, in a superficial way, the motives of confreres. The ministry of service united in a common cause is influential for good and comes from the coöperation of individuals. The service of pharmacy must prove valuable to the public and essential to the welfare and health of the community.

Charles G. Merrell, in his comment on the organization plan now before the American Pharmaceutical Association, applies the thought in this way: "No organization, or business, will be of real value to the community interests that it is intended to serve unless there be born into it ideals and purposes that are not only beneficial to the drug trade but to our national life as well." He reflects further, that "in the last analysis every business, or profession, survives just to the extent that it renders service to the community, and is rewarded according to the ultimate value of that service provided only, and here is where the need has existed for organization—that the community is made aware by publicity of that value."

A doctor, writing on medical organizations, counsels that: "It is not money; it is not political preferment; it is not financially-prompted group organization; it is not absorption by the state that will save us to ourselves; it is the preferential honor we show to each other, our loyalty to our ideals; and our heart-prompted service to the people. These things must be bred in the individual doctor and inculcated in the profession at large."

E. G. E.

ASSOCIATION PROGRAMS OF BUSINESS AND ENTERTAINMENTS.

THERE are always two viewpoints of a question, and so relative to Association programs. Entertainments, no doubt, sometimes interfere with the work of associations, but the members reserve the annual meetings for an outing. Attendance at a national convention means long travel for most members, and an opportunity of seeing other sections of the country. The situation is somewhat different in State meetings.

The Iowa Pharmaceutical Association, complying with the wishes expressed by the members, has concluded to devote less time to entertainments and more to business. By a practically unanimous vote the members of the same Association

have decided to refer all reports to an advisory board for action, leaving the program open for other business. This arrangement is in line with that of the American Pharmaceutical Association.

Section officers of the A. Ph. A., and members, are each year advised to have contributors present their papers in abstract, and this is one of the purposes of this comment. If these instructions are observed there will be a tendency to briefer reports and papers, thereby saving time and publication costs. However, this should not be carried to the extreme; mere records will not always take the place of more extended papers. Possibly more of the business of associations could be transacted by mail and thereby relieve the sessions of considerable work. Again there may be different viewpoints, but it remains a fact that business hurried through during the sessions does not invariably receive as careful consideration as by correspondence. These thoughts are merely suggestive. E. G. E.

CONDENSED REPORTS AND PAPERS.

NOT infrequently more time is required for condensing reports and papers than for the original preparation of them. The Association has no intention of eliminating essential matter from contributed articles; nor are reports expected which do not fully serve their important purposes as records for future references. More papers, not a lesser number, are solicited. They should be brief, but not to the extent that they are only understandable by the authors or those well informed on the subjects, and impossible of comprehension by the larger number who seek information and would obtain it from more explanatory data. In this spirit—that of helpfulness—contributors are requested to condense papers and reports, and this applies to those of the recent convention and future contributions.

In other publications such work is done by reviewers; we must largely speak in the singular; and, if others say this places an awful burden on them, our request should be willingly and cheerfully complied with. Contributions should be condensed without sacrificing their merits and purposes; with this in view an appeal is made to the authors that they contract their articles in every way possible —the messages should be clearly and tersely given. Only those familiar with the work of condensing and abstracting know of the time-consuming labor involved in boiling down the thousand or more pages of convention proceedings. The aim is to have these minutes in the two succeeding issues of the JOURNAL; cooperation will make this possible. E. G. E.

THE PHARMACY STUDENT AND HIS WORK.

THE quality of work in the laboratories of pharmacy schools and in a lesser degree that of candidates before boards of pharmacy is to some extent influenced by the results and the use made of their work. The report of a visitor to

the technical schools of a large city brought this to mind. A young man had spent time, energy and care in making an article of brass; he was asked what would be done with his handiwork when finished—"Remelted," he said, with an expression that plainly said, "What's the use?" A student of another school was constructing a stool. The visitor asked "I suppose when you finish this nice little bench it will be broken up?" "Not much," he said with an air of pride, "this is for my little sister up in the kindergarten to sit on." These are homely examples; each one has a lesson.

Interest must be enlisted to get the most out of students, an appeal must be made to their vision—their imagination. They should see the connection between their thoughts and the ultimate purposes of their application, and expenditure of their time and energy. There will be less slighting of work when they find a vision inciting interest which spurs to better and greater effort. It is not always possible to utilize material which finds application beyond the laboratory, but teachers can more frequently adapt the work of students so that they may realize a greater appreciation of its usefulness. There is need of greater vision and the responsibility of its awakening in the students is with the teachers. E. G. E.

IDEALS NEEDED IN BUSINESS.

Jeremy Bentham, one of the first and greatest writers on legal and political reforms, immortalized the famous sentence of Joseph Priestley: "The greatest happiness of the greatest number." The National Association of Credit Men expressed the thought in a letter, recently sent out to its members, in the following words: "The producer of commodities must not in these days take advantage of scarcity and a pressing need to impose the biggest profit that a given commodity will bear. The world is starving, not for material things but for spiritual impulses, and plain speaking about spiritual ideals is the most needed thing in the world to-day." The human element is recognized in the foregoing as an important factor in business, and is an encouraging sign of these times when selfishness so largely controls the actions of men.

THE U. S. SUPREME COURT DECISION.

Briefly, the U. S. Supreme Court has decided that there are no serious defects in the Prohibition Law; that Congress did take a legal two-thirds vote in proposing the amendment; that a State referendum on a National amendment is unconstitutional; that the amendment does not conflict with Article V of the Constitution; that the amendment is now as much a part of the Constitution as any other part, and deserves equal respect; that the phrase "concurrent power" cannot be construed as joint power, and that the states cannot claim a share in enforcement legislation; and that though there are limits beyond which Congress cannot go in enforcing the amendment those limits have not been exceeded in the Volstead Act.

RELATIVE CONTENT OF VOLATILE OIL AND ASH IN SAGE LEAVES AND STEMS.*

BY ARNO VIEHOEVER AND JOSEPH F. CLEVENGER.

One of the spice products seriously affected by the war is sage. Before the war the material imported came almost exclusively from Austria, representing usually normal sage from *Salvia officinalis* L. With the increasing difficulty of obtaining Austrian sage, due to the blockade of Austrian ports, substitutes were imported, obtained from *Salvia triloba* L., collected in Greece, and *Salvia lavandulaefolia* Vahl., collected in Spain. These products were so different in appearance and flavor that the Department deemed it advisable to require the labeling "Greek" or "Spanish Sage," respectively.[1] Especially in the Greek product the amount of stems was frequently far in excess of that found in the previously imported Austrian sage. This excess was due in part to the different manner of growth of the plant, but especially to the lack of care in collecting the leaves.

With the raising of the blockade of Austrian ports new shipments of Dalmatain sage, obtained from *Salvia officinalis* L., were offered for entry. These, however, contained very considerable amounts of stems, more or less in excess of the 12 percent limit adopted by the Government.[2] Since so much difficulty has been and is still being experienced in obtaining material from European markets, properly collected, without excessive stems, the suggestion was made by representatives of the trade that such products, although they contained considerable amounts of stems, might be permitted entry. The limit of stems in the whole product, as mentioned above, is 12 percent, while a subsequent ruling of the Department[3] limits the crude fiber in the ground sage to 25 percent. Definite data, however, were lacking to show the justification for the exclusion of products containing considerable amounts of stems.

It should be noted here that American sage, which was grown in increasing amounts during the war, to our knowledge did not usually contain such an excess of stems as noted in the imported material. We are informed by growers of American sage that the domestic product generally contained excessive amounts of ash and acid-insoluble ash, exceeding those set by the United States regulations. To verify these findings, and, if possible, to find the explanation, consideration was given to this question.

VOLATILE OIL.

While the organoleptic tests of different parts of the sage plants—leaf, petioles, and the stem—suggested distinct difference in oil content and consequently spice value, no data could be found in literature or the records of the Bureau showing the quantitative difference in the oil content of these different parts.

Botanical Data.—The volatile oil, as is generally conceded, is located in glands and glandular hairs.

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* Read before Scientific Section, A. Ph. A., City of Washington meeting, 1920.

[1] *Service and Regulatory Announcements. Chemistry*, 23, Item 277, 1918.

[2] *Service and Regulatory Announcements. Chem.*, 19, Item 195, 1917.

[3] Department of Agriculture Circular, 136, "Standard of Purity for Food Products," p. 15, 1919.

The glands are disc-like, forming an 8-celled head, containing the oil in a brownish yellow secretion. They are either sessile or supported by a very short one-celled stalk. Glandular hairs occur in two types: (*a*) having a 2- to 4-celled stalk and a small one-celled more or less spherical head; (*b*) having a one-celled stalk and a 2-celled more or less oval head. In either case the heads contain the glandular secretion (see Fig. 1). The glands and glandular hairs are found on the epidermis of the leaves. Here they occur on either side, though Wall[4] reports them only on the lower side. We also found them on the petiole and even on such parts of the stem where the epidermis had not been replaced by cork or woody tissue. They evidently occur most abundantly on the leaves, and the younger leaves or those of the flowering stem likely contain more unimpaired glands and glandular hairs than the old leaves.

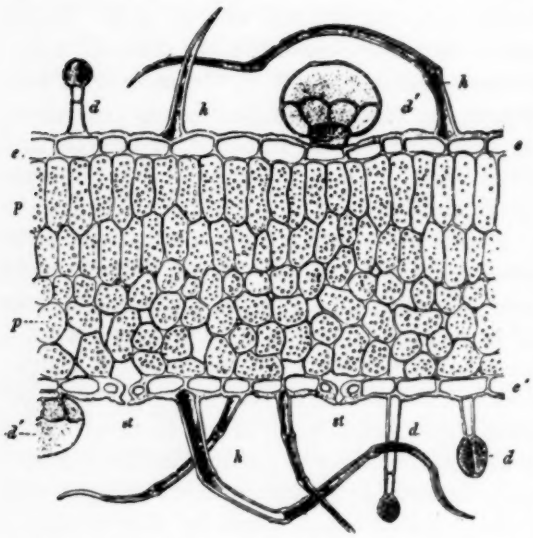

Fig. 1.—Leaf of *Salvia officinalis* L. (Cross section.) *e*, upper epidermis; *e'*, lower epidermis; *p*, mesophyll; *h*, non-glandular hairs; *d*, glandular hair; *d'*, disc-like gland; *st*, stomata. Approx. × 150. After Vogl.

The suggestion is made in books, dealing with the cultivation of sage, to collect the leaves during the flowering period in June and July, and is based, quite likely, on the experience that the leaves contain more oil at that stage of growth. At any rate, an analysis of domestic sage leaves collected in late summer and fall proved them below standard for volatile oil, as shown later on.

Fig. 2 shows the bushy habit of growth of sage (*Salvia officinalis* L.) collected in this country. It demonstrates how, by careless collection, many stems might be included in the drug. Even the harvesting of the leaves by cutting the leaves with a mower will likely include many woody stems. This method of harvesting is referred to in *Farmers' Bulletin* 663[5] as a means of getting a cheap grade.

Chemical Data.—The material imported as "Dalmatian Sage," as well as the American sage, was carefully separated into leaves and stems. The separations were ground to powder and immediately extracted. The amount of volatile oil was determined by the indirect method for volatile ether extract described in "Methods of Analysis"[6] and also under "General Tests."[7] The amounts found by this method are given in Table I.

As seen from the table, the amount of volatile ether extract found in the

[4] Wall, Otto A. "Handbook of Pharmacognosy," p. 359, 1917.

[5] U. S. Department of Agriculture, *Farmers' Bulletin*, No. 663, p. 33, 1915. "Drug Plants under Cultivation."

[6] *Jour. of Official Agricultural Chemists*, p. 318, 1916. "Spices and Condiments."

[7] United States Pharmacopoeia, Ninth Decennial Revision, p. 591, 1916.

TABLE I.—RELATIVE CONTENT OF VOLATILE OIL AND ASH IN SAGE LEAVES AND STEMS.

Lab. No.	Part employed.	Condition.	Volatile ether[1] extract. (%).	Ash.[1] (%). Total.	Ash.[1] (%). Acid insoluble.	Source.	Remarks.
		American Sage.					
2943	Leaves	Without stems	0.92	8.0	1.8	Non-commercial sample[2]	Separated in laboratory
	Stems	Herbaceous and somewhat woody, without leaves	..	6.1	1.1	Non-commercial sample	Separated in laboratory
2990	Leaves	Without stems	0.92	12.6	..	Non-commercial sample[3]	Separated in laboratory
	Stems	Herbaceous and somewhat woody, without leaves	0.24	5.5	0.9	Non-commercial sample	Separated in laboratory
3036	Leaves	Without stems	1.26	13.3	5.3	Non-commercial sample[4]	Separated in laboratory, 1917 crop
	Stems	Herbaceous and somewhat woody, without leaves	0.49	8.0	2.4	Non-commercial sample	Separated in laboratory, 1917 crop
3037	Leaves	Without stems	1.06	15.4	8.0	Non-commercial sample[4]	Separated in laboratory, 1918 crop
	Stems	Herbaceous and somewhat woody, without leaves	0.29	7.3	2.9	Non-commercial sample	Separated in laboratory, 1918 crop
3038	Leaves	Without stems	1.06	17.9	11.8	Non-commercial sample[4]	Separated in laboratory, 1919 crop
	Stems	Herbaceous, without leaves	0.47	7.4	2.9	Non-commercial sample	Separated in laboratory, 1919 crop
	Stems	Somewhat woody	0.22	5.0	1.6	Non-commercial sample	Separated in laboratory, 1919 crop
		Dalmatian Sage.					
2920	Leaves	Without stems	1.18	7.2	0.9	Commercial sample	Separated in laboratory
	Stems	Herbaceous and woody, without leaves.	0.48	..	..	Commercial sample	Separated in laboratory
		Released Portion.					
2921	Leaves	Without stems	1.63	6.2	0.6	Commercial sample	Separated in laboratory
	Stems	Herbaceous and woody, without leaves.	0.60	5.6	0.5	Commercial sample	Separated in laboratory
		Rejected Portion.					
2922	Rejections	Herbaceous, many woody stems and some leaves	0.59	4.7	0.2	Commercial sample	Commercially separated
	Stems	Herbaceous, from tops only	0.94	5.3	0.5	Commercial sample	Separated in laboratory
	Stems	Woody, from bases	0.20	4.0	0.2	Commercial sample	Separated in laboratory

[1] Determined by J. F. Clevenger.
[2] Collected in fall of 1919, in Virginia.
[3] Collected in late summer, 1919, in Maryland.
[4] Collected in late summer in Wisconsin.

leaves of samples collected in Maryland and Viriginia, was below the limit of tolerance of 1 percent. This is quite likely explained by the fact that the material was collected in late summer or fall. Material collected in Wisconsin yielded higher amounts. Since these leaves also, as far as we could learn, were collected rather late in the year, the data given are likely not expressive of the highest amounts of volatile ether extract occurring in good American sage.

Fig. 2.—*Salvia officinalis* L. Cultivated plant, showing bushy habit of growth.

The amount of volatile ether extract found in the leaves of Dalmatian sage was higher than 1 percent. In both the American and the Dalmatian sages the stems yielded decidedly less volatile ether extract than the leaves. Of especial interest are the results obtained with the stems, separated into herbaceous tops and woody bases. From the data given, it is evident that appreciable amounts, though lower than the limit of tolerance, were found in the tops containing no woody portions. The more or less woody part, representing the main portion of the stems, however, contains very little volatile oil. The limitation of the stems in sage, therefore, is justified.

The data recorded are the highest found in a number of determinations. Material apparently somewhat heated during grinding, and other material in a ground condition kept in an open container for a number of days, yielded results which were appreciably lower, though indicating the relative difference in oil content of the different parts. These observations may have a bearing on commercial practices of grinding sage and marketing it in the ground state. When testing for the amount of volatile ether extract it is considered advisable to extract the material immediately after grinding.

It is of interest in this connection to note that the separation of stems from the leaves is entirely feasible on a commercial scale. Such separations, to our knowledge, have been carried out quite successfully by passing the material between rollers.

ASH.

Both stems and leaves of American, as well as Dalmatian sage, were examined for the amount of total and acid-insoluble ash. The data are given in Table I. It will be seen that the amounts found in imported Dalmatian sage are well within the limit of tolerance. In only one sample of American sage was the total ash with-

in the limit of tolerance; in all other samples both the total and acid-insoluble ash exceeded the limits of tolerance, namely 10 percent for total ash, and 1 percent for acid-insoluble ash. As was expected from other general experience, the amount of both total and acid-insoluble ash was found to be higher in the leaves than in the stems. While the explanation for the high acid-insoluble ash may be found in the fact that the samples examined were grown on sandy soil, the samples were too few to justify general conclusions.

CONCLUSIONS.

The amount of volatile oil (volatile ether extract) found in sage leaves was considerably higher—about three times that found in the stems—being in the ratio of 1.63–0.60, 1.26–0.49, 1.18–0.48, 1.06–0.29, 0.92–0.24, respectively.

The herbaceous parts of the axis located close to or representing the tops of the plant, as might be expected, yielded more volatile ether extract than the woody basal portion of the axis, the amounts being about 0.9 percent and 0.2 percent, respectively.

The chemical findings are supported by the following botanical data: The glands and glandular hairs containing the volatile oil are to be found only in the epidermis of leaves, petioles and herbaceous stems. They are most abundant on the leaves, either upper or under side, and completely absent on woody stems, where the epidermis has been replaced by cork and woody tissue.

Since the stems are low in volatile oil, and hence, in spice value, a limitation of their amount is justified.

The leaves generally contain more ash than the stems. With regard to the total and acid-insoluble ash, determinations made on 5 samples indicate a tendency in domestic sages of high total and especially acid-insoluble ash, a tendency observed by growers of domestic sage.

PHARMACOGNOSY LABORATORY,
BUREAU OF CHEMISTRY.

HEMLOCK BARK (*Tsuga canadensis*) FOR PHARMACEUTICAL PURPOSES.*

BY H. D. GARR AND GEORGE E. ÉWE.

Hemlock bark finds its greatest use in the tanning industry, but considerable is employed in Pharmacy. Its use in the tanning industry is dependent upon its tannin content. In pharmacy the tannin content is also the most important consideration but, in addition, the oleoresin and volatile oil contents are frequently of importance.

For the purposes of tanning, the whole bark is usually employed, and it is not considered necessary to remove the outer cork layers. But in pharmacy the rossed bark is to be preferred since the outer cork layers are deficient in tannin, practically devoid of volatile oil, and carry excessive color and extractive matters which are non-essential to the purposes of pharmacy.

Kraemer states in "Scientific and Applied Pharmacognosy" that only the

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* Read before Philadelphia Branch, A. Ph. A., May meeting, 1920.

inner bark of *Tsuga canadensis* is used medicinally while the whole bark is employed in the tanning industry.

"The National Standard Dispensatory" states that the entire bark of *Tsuga canadensis* is used for tanning purposes but that in pharmacy the rough outer layer is usually removed.

Because of the preponderating use of hemlock bark for tanning purposes, most of it is collected in a whole condition. Some of this whole bark finds its way into the stocks of crude drug dealers and, as a consequence, the whole bark is invariably offered to the pharmaceutical trade.

The purpose of this communication, therefore, is to present evidence of the superiority of the rossed over the whole bark, for pharmaceutical purposes; to suggest the use of only the rossed bark in Pharmacy; to suggest that crude drug dealers permit only the rossed bark to occupy a place in their stock, or in lieu thereof, to submit only rossed bark to pharmacists.

FORMS IN WHICH HEMLOCK BARK APPEARS IN THE DRUG MARKET.

Hemlock bark appears in the drug market in the whole bark condition and also in the rossed bark condition. The whole bark is in the same condition in which it was gathered from the tree. It consists of the outer cork layers, inner cortex and phloem region. The rossed or inner bark consists of the inner cortex and phloem region of the whole bark.

COMPARISONS OF RATIO OF WHOLE BARK TO ROSSED BARK.

The outer bark, which consists mainly of several layers of cork cells intermingled with dead cortex tissue containing some dead tannin and resin cells, was separated from four lots of whole bark from different sources; the two separated portions of the barks were then weighed.

Lot No.	Percent of outer bark.	Percent of inner bark.
1	71.00	29.00
2	54.71	45.29
3	49.20	50.80
4	46.46	53.54
Average	55.34	44.66

The results for ratio of whole bark to rossed bark will naturally vary in proportion to the thoroughness exercised in removing the outer bark. From the above results, it can be estimated that one-half of whole hemlock bark will be "lost" to the pharmaceutical trade by the process of rossing. This does not mean that the outer bark is "lost" entirely to the dealer in the bark since there is no doubt that it will find a sale as a tanning material of lower grade than the whole bark.

COMPARISONS OF EXTRACTIVE CONTENT OF WHOLE AND ROSSED BARK.

In determining the extractive content, two menstrua were employed, namely, hot water and 32 percent alcohol. Hot water was employed for the reason that it is exclusively used in the tanning industry and its use has been established by that industry as the most economical solvent for the tannin of the bark. In pharmacy, however, the oleoresin and volatile oil are of consequence, in addition

to the tannin, and for this reason, an alcoholic menstruum was also employed. An alcoholic menstruum of 32 percent strength was chosen for the reason that it has long been employed in pharmacy in connection with this drug and much of the clinical data on hemlock bark has been collected by the use of a fluid extract made with an alcoholic menstruum of this strength.

Lot No.	Portions of bark.	Hot water-soluble extractive. Percent.	32% Alcohol-soluble extractive. Percent.
	Whole bark	11.88	18.29
1	Outer bark	11.27	18.20
	Inner bark	13.37	18.52
	Whole bark	12.57	20.56
2	Outer bark	12.54	21.36
	Inner bark	12.60	19.60
	Whole bark	13.09	...
3	Outer bark	12.75	...
	Inner bark	13.62	...
	Whole bark	11.27	18.72
4	Outer bark	10.29	18.80
	Inner bark	12.12	18.68

It will be noted that in general there is no preference, quantitatively, between the extractive matters of the outer and inner bark but, as proven later in this communication, qualitative preference is on the side of the extractive matters of the inner bark since they are higher in tannin, oleoresin and volatile oil content and lower in the non-essential coloring and extractive matters.

RATIO OF TANNIN CONTENT OF OUTER AND INNER BARKS.

In determining the ratio of tannin content of the outer and inner barks the hot water extract was employed, since its use has been established in the tanning industry as a satisfactory solvent for the tannin of hemlock bark.

Preference was also given to the hot water extract for the reason that it contained less of the coloring matters of the drug than the alcoholic extract, and coloring matters are a source of error in the estimation of the ratio of tannin content.

No actual determinations of the tannin were made; the ratio of tannin content being determined by treating definite quantities of the diluted aqueous extract with ferric chloride to bring out the color, comparing the colors quantitatively by means of a Duboscq colorimeter and correcting the reading of the colorimeter for the initial variations in color of the original extracts. Ferrous salts were not efficient in bringing out the color.

Lot No.	Ratio of tannin content. Outer bark.	Inner bark.
1	1	1.30
2	1	1.45
3	1	2.01
4	1	1.21
Average	1	1.49

Therefore, it can be stated that on the average, the tannin content is about 50 percent greater in the inner than in the outer bark.

Micro-chemical tests also confirmed the above conclusion. The micro-

chemical tests were made by staining transverse sections of the inner and outer barks with ferric chloride and examining the stained sections under the microscope.

RATIO OF COLORING MATTER CONTENT OF OUTER AND INNER BARK.

The most striking difference in the appearance of the water-soluble and 32 percent alcohol-soluble extracts of the outer and inner bark is the color. This difference is more striking in the case of the 32 percent alcohol-soluble extracts since alcohol is a better solvent of the coloring matters than water and, as a consequence, the alcoholic extracts are proportionately more highly colored. The following table will illustrate the ratio of coloring matters of outer and inner bark extracted by hot water and by 32 percent alcohol:

Lot No.	Ratio of coloring matter content. Outer bark.		Inner bark.	
1.....	Hot water	2.1	Hot water	1
	32% alcohol	4.0	32% alcohol	1
2.....	Hot water	1.8	Hot water	1
	32% alcohol	3.3	32% alcohol	1
3.....	Hot water	2.0	Hot water	1
	32% alcohol	..	32% alcohol	..
4.....	Hot water	1.7	Hot water	1
	32% alcohol	3.0	32% alcohol	1

Therefore, the outer bark contains, on the average, twice (actually 1.9 times) as much hot water-soluble coloring matter as the inner bark and $3^1/_2$ times (actually 3.4 times) as much 32 percent alcohol-soluble coloring matter.

Knowledge of the proportion of coloring matter in the whole and rossed barks is of importance in explaining to the trade the variation in color of finished products in the event of adoption of the use of rossed bark in place of the whole bark.

The ratio of coloring matter content of the alcohol and water extracts from the same drug was not determined but in every case the alcoholic extracts possessed many times the amount of coloring matter possessed by the water extracts.

The nature of the coloring was not ascertained. It is brownish red in color. Under the microscope the coloring matter was found to be lodged mainly in the cork cells of the outer bark.

LOCATION OF OLEORESIN AND VOLATILE OIL IN HEMLOCK BARK.

No exact quantitative chemical comparative determinations of the oleoresin and volatile oil contents of the outer and inner barks were made for the reason that microscopic examination showed a tremendously greater content of these constituents in the inner bark. Therefore, the inner bark is to be preferred for this reason in addition to its greater tannin content.

MICROSCOPIC STRUCTURE OF HEMLOCK BARK (*Tsuga canadensis*).

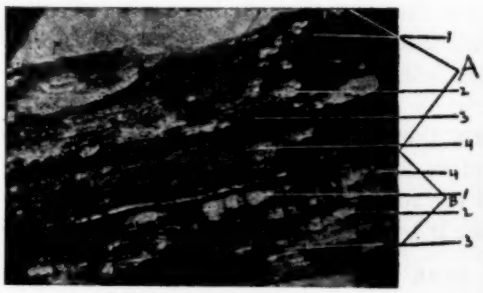
Through the kind permission of H. W. Youngken, professor of Botany and Pharmacognosy at the Philadelphia College of Pharmacy, and with the able assistance of Benjamin H. Hoffstein, Ph.C., instructor of Botany and Pharmacognosy at the same institution, several photomicrographs of the transverse and

radial longitudinal sections of the bark were prepared and are herewith reproduced:

PHARMACEUTICAL USES OF HEMLOCK BARK.

The main pharmaceutical purposes of hemlock bark are for the manufacture of fluid and solid extracts, the manufacture of volatile oil and the aromatization of local antiseptics.

HEMLOCK BARK.
Tsuga canadensis.

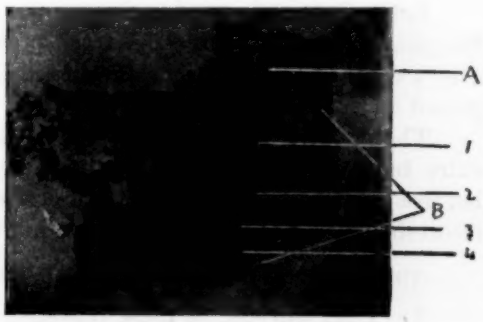


Magnified × 12 (approximately)
RADIAL LONGITUDINAL SECTION.

A —Outer Bark
1. Cork Cells, Rich in Coloring Matter.
2. Stone Cells.
3. Secondary Cork Formation.
4. Dead Phloem Tissue.

B.—Inner Bark.
1. Groups of Stone Cells.
2. Groups of Stone Cells.
3. Phloem Tissue Rich in Tannin and Resin-like Substances.
4. Resin Cell.

HEMLOCK BARK.
Tsuga canadensis.



Magnified × 12 (approximately).

TRANSVERSE SECTION.

A.—Cork Cells of Outer Bark

B.—Inner Bark
1. Groups of Stone Cells.
2. Phloem Tissue, Rich in Tannin and Resin-like Substances.
3. Medullary Ray Cells, One Cell in Width.
4. Same as Three.

HEMLOCK BARK.
Tsuga canadensis.

Magnified × 30 (approximately).
INNER BARK, RADIAL LONGITUDINAL SECTION, ENLARGED.
1.—Groups of Stone Cells.
2.—Phloem Tissue
3.—Medullary Ray Cells.

For the manufacture of fluid and solid extracts only the rossed bark should be used. For the manufacture of volatile oil the point to be decided is comparison of the cost of handling the extra inert material represented by the outer bark with the cost of rossing the bark.

In the aromatization of local antiseptics the rossed bark is preferable, although an equivalent amount of the whole bark may be used. It might be well to explain that by "aromatization of local antiseptics" is meant the steam distillation of hemlock bark to obtain an aqueous, colorless distillate saturated with the aromatic oily constituents of the bark, which is preferred by some as a basis for the manufacture of local antiseptics of the "Liquor Antiseptic Compound" type.

COMPARATIVE PRICES OF WHOLE AND ROSSED BARK.

Both whole and rossed bark are among the cheapest of crude drugs with which the pharmacist has to deal. At the present date the whole bark wholesales for 4 to 5 cents per pound while the rossed bark sells for from $4^1/_2$ to $5^1/_2$ cents per pound in the same quantities.

The adoption of the use of rossed bark, therefore, imposes but a negligible extra burden upon pharmacists who, heretofore, employed only the whole bark, because of the very slight increased cost of the rossed bark. Upon a tannin and oleoresin content basis the advantage in price is by far in favor of the rossed bark.

TENTATIVE STANDARDS FOR HEMLOCK BARK FOR MEDICINAL PURPOSES.

The chief purpose of these tentative standards is propaganda for the use of only the rossed bark in pharmacy.

HEMLOCK BARK.

The inner bark of *Tsuga canadensis* (L.) Carr. Family: Pinaceae.

Hemlock bark comes in flattened pieces varying in size and thickness. The outer surface is cinnamon-brown or blackish brown, and longitudinally wrinkled. The inner surface is yellowish brown to cinnamon-brown, finely striate, and with numerous small crystals. The fracture is short in the outer portion, but more or less fibrous in the inner portion. The odor is faint or nearly absent and the taste is markedly astringent.

In transverse section, the bark shows a few concentric layers of cork alternating with intervening layers of old phloem whose cells are colored a deep red. Within these are old phloem cells whose continuity is interrupted by rather regular and frequent concentric rings of cells containing prisms of calcium oxalate. Scattered throughout, are frequent groups of sclerenchyma or single cells (stone cells), thick-walled, with characteristic striae.

Medullary rays frequent, one cell in width and containing starch grains.

SUMMARY.

Hemlock bark (*Tsuga canadensis*) in the rossed condition is to be preferred for use in pharmacy.

Authorities are cited supporting the above assertion.

Comparisons of ratio of whole bark to rossed bark; comparisons of extractive contents (by hot water and 32 percent alcohol) of whole and rossed bark; the ratio of tannin content of outer and inner bark; the ratio of coloring matter contents of outer and inner bark and the location of oleoresin and volatile oil in the bark are given and discussed with the result that the assertion made in the first paragraph of this summary is supported.

Much of the bark being offered to pharmacists is in the whole condition.

It is suggested that crude drug dealers permit only the rossed bark to occupy a place in their stock, or in lieu thereof, to submit only rossed bark to pharmacists.

The forms in which the drug appears in the market are described briefly.

The microscopic structure of hemlock bark is illustrated by reproductions of micro-photographs.

The chief pharmaceutical uses of the bark are described and selection of the bark for particular purposes is discussed.

Comparative prices of whole and rossed bark are given. It is suggested that the very slight increased cost of the bark in the rossed condition imposes but a negligible burden upon those who heretofore have employed only the whole bark.

Tentative standards for hemlock bark for pharmaceutical purposes are suggested.

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THE PROPHYLACTIC AND THERAPEUTIC VALUE OF VACCINES.*

BY G. W. McCOY.[1]

In discussing the prophylactic value of vaccines I take it for granted that there is no need to take time to consider smallpox vaccine and antirabic vaccine. These two agents, to which indeed alone the name "vaccine" ought to be restricted, are on so well established a basis as to put them beyond the stage where it is necessary to advance evidence to prove their worth.

Coming to killed bacterial suspensions to which the names "bacterial vaccines" or "bacterins" are applied and discussing first the prophylactic uses of the preparations we must first consider the scientific basis for them. It has long been known that a mild attack of certain infectious diseases would prevent the development later of severe attacks of the same disease. It was but a step from this to the prevention of the disease by the injection of the bacteria which are responsible for the infection. The killed germs are generally employed though there are some examples of the use of living cultures.

As a basis of vaccination of this sort we must know first what is really the cause of the disease and then know whether the causative organism is capable of inducing a change in the condition of the animal body that will prevent the securing of a foothold by the invading germs or at least render the invasion relatively harmless. There are some organisms which are known to cause disease, yet the preparation of a vaccine from them will fail to protect against infection. A good example of this is tuberculosis; we have known the cause of tuberculosis for about 40 years and it is an organism that is relatively easily cultivated, but no one has yet been able to devise any effective preventive vaccine though the subject has enlisted the efforts of the best minds engaged in the study of immunity.

What, then, are the diseases we can effectively vaccinate against? The number is regrettably small; the best example, and at the same time the one on which the evidence is most satisfactory, is typhoid fever. I will not burden you with figures, but will simply state that, based on apparently trustworthy data,

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* Read before Scientific Section, A. Ph. A., City of Washington meeting, 1920. This and two other papers are part of a symposium. The titles of the other papers are: "Biological Assay—Its Scope and Limitations" by H. C. Hamilton and "Vaccines and Immune Serums—Have they Come to Stay?" by F. E. Stewart.

[1] Director, Hygienic Laboratory, Washington, D. C.

typhoid fever has been eliminated from armies almost entirely by systematic vaccinations, and the same holds true for those closely related diseases, the paratyphoid fevers.

Leaving this generally recognized success and passing to other members of the group of intestinal infections, such evidence as we have is wholly favorable to the view that Asiatic cholera and tropical dysentery may be controlled by means of bacterial vaccines, but it is too early to speak with much assurance on this point.

During the past eighteen months we have heard much about the use of vaccines in the prevention of, or at least the mitigation of, the complications of respiratory infections, particularly influenza; it is perhaps a good indication of the want of large success in this line that the subject is still in a debatable stage. The first trouble we encounter here is that we do not know with any degree of certainty as to just what organism is the cause of epidemic influenza. We have given a great deal of attention to this subject at the Hygienic Laboratory since the epidemic appeared in the autumn of 1918 and have investigated many alleged successful uses of influenza vaccine, but when the evidence is summed up we must admit that the results have not been encouraging. The sources of error in observations of this sort are many and I want to draw your attention to just one—a very common one. We are told that in a given group of persons exposed in about the same way one-third were vaccinated, none of whom got the disease, while among the unvaccinated two-thirds there were many cases; possibly all, or in any event a large percentage of the two-thirds contracting the disease. This sounds very encouraging—at least it did to me the first time I heard it. But when we make a personal investigation and learn that vaccinations were done only after most of those who became sick had been stricken, the experience is seen in a different light. We now realize that those who were vaccinated and escaped were the part of the population that would have escaped in any event.

In order to eliminate such sources of error the Public Health Service conducted observations by vaccinating half of the persons in groups that had not been exposed. In such of these groups as later became infected it was found that influenza and pneumonia took impartially the vaccinated and unvaccinated. In other words, under conditions as nearly ideal as we could make them the vaccines available failed to prove of service. Possibly in time a more scientifically devised or a more skilfully prepared vaccine against influenza and its complications may be available, but at present the outlook is not particularly encouraging.

We have been much interested in the subject of vaccination against pneumonia not due to influenza and here the outlook is more encouraging. Considerable work in the Army, and some little civil experience, indicates that a considerable degree of protection is afforded by the use of a vaccine made of various kinds of bacteria that are associated with the kind of pneumonia which, in normal times, claims so many victims. This is in many respects different from the pneumonia that follows influenza.

Much has been done in the way of attempts to produce a vaccine that could be given in a single dose and at the same time give the killed bacteria in large enough dose to give reasonable assurance of conferring any immunity that is to be had. At one time it seemed likely that vaccines suspended in oil offered the solution of the problem but a considerable volume of experimental data rather points

in the direction of much decreased effectiveness of the oil vaccines compared with those in ordinary use.

From what I have said you will be prepared to hear me express a somewhat conservative, probably even skeptical, opinion of vaccines against "colds." In the very nature of the thing it is very hard to secure trustworthy evidence about these preparations; so few people have been vaccinated, there are no accurate reports on the occurrence of colds among the vaccinated and non-vaccinated, and, on the whole, our basis for any opinion is slender. As we know next to nothing about the essential cause of colds we clearly have no rational basis for vaccine prophylaxis, and, as I have indicated, no good empirical indications.

The consideration of the *therapeutic* side of my subject will occupy but little time. While prophylactic vaccination is directed chiefly against diseases that prevail in epidemic form curative vaccination is practiced chiefly against the more purely personal infections and especially those of a chronic nature.

At the start it should be made plain that there are two kinds of therapeutic vaccines—the "stock" and the "autogenous" varieties. The former are made from standard cultures and usually by large manufacturing plants, while the latter are prepared for each individual patient from growths derived from that patient. The latter are usually prepared by the physician or by a specialist in this line of work. Each class has some advantages; I do not pretend to be able to hazard an opinion as to the respective merits of the two.

Now, what are the conditions in which vaccines may be used in a curative way with prospect of success? Judging by reports of men of large experience, in some forms of acne, in boils, in chronic pus infections and in some other long standing conditions we may expect benefit from vaccines.

In certain acute conditions, notably typhoid fever and pneumonia, modified vaccines given intravenously sometimes appear to work an almost marvelous benefit. There is some reason for believing that this action is not due to the fact that a preparation of the causative organism has been used, but rather because a foreign element has been introduced. This so-called foreign protein reaction is attracting much attention in recent years but is not yet on a basis that justifies any definite statements.

There are not wanting those who assert that the greatest value that resides in vaccines in treatment is the psychological one. The use of a medicine hypodermically has about it, so say these skeptics, something that makes so marked an impression on the patient that it is reflected in an actual or believed improvement. They also rather broadly intimate that some physicians are not averse to encouraging this, to the benefit of everybody concerned, including, I hope, the pharmacist.

It has always seemed to me a rather significant fact that in many of the best hospitals, and particularly in the Government hospitals, vaccines for treatment find almost no sphere for use. You may draw your own conclusions from this.

Finally let me say that vaccines have one advantage over many other remedial agents—they are relatively harmless.

I should be remiss if I did not embrace the opportunity presented by appearing before this group to urge that as dispensers of medicine you should use every endeavor to assure your patients that the goods you sell are as efficient as it is

possible to have them, and in this respect your chief concern should be that biological products should be kept cool—actual contact with ice is all but imperative with the most useful and important of the whole list—smallpox vaccine.

BIOLOGIC ASSAYING: ITS SCOPE AND LIMITATIONS.*

BY HERBERT C. HAMILTON.

To many of you this subject of biologic standardization may seem hackneyed and time-worn. Among my earliest recollections in connection with this subject was a controversy between the representatives of two pharmaceutical manufacturing firms as to whether it is possible to make the test quantitative, neither party questioning its truly qualitative character when properly applied.

Now, however, the question seems to have advanced a point. It is apparently doubful in some minds whether it is even qualitative. It was stated recently that "If you would know the effect of a drug on a human it must be tested on a human; this cannot be deduced with any degree of certainty by its action on one of the lower animals."

Is there any excuse for continuing an apparently profitless discussion? There is more than an excuse, there is a reason and a vital one. To each of us, either for himself or for some one near and dear to him, it is a vital question since few of us are fortunate enough to escape the physician and the druggist.

If you respond that most of the drugs we use are standardized chemically or are so harmless that they need no standardization, it is really a strong point for biologic standardization for why should any powerful agent be left to chance if a method can be applied by which a uniform product results?

Is there any less reason why the physician and the patient should be able to purchase standardized digitalis, ergot or antitoxin than for us to be able to buy standardized solutions of strychnine or morphine?

But some will say that standardization of digitalis does not insure potency when you buy it some months or years afterwards. But it does insure the marketing of a uniform product from a drug which is highly variable.

Digitalis grows under many varying conditions of climate, season and soil, sometimes cultivated, sometimes not. The time of gathering, the method and efficiency of the drying, the extraction, all may influence the activity of the final extract. Should this be left to chance if it is possible to make it a certainty?

But, you may reply by the question "How much certainty is there when the basis of the test is only that the drug will kill a dog, cat, pig, frog or gold fish?" That question, however, is really beside the point. The question of killing is unimportant; it is the amount that kills and the character of the death. If two tinctures of digitalis are tested on cats or frogs and one is found to kill with one-half the dose required for the other, which would the physician choose? Or, if two tinctures are tested on frogs and one stops the heart in systole while the other, although equally toxic, consistently leaves the heart in diastole and when tested on the laid-bare heart does not slow the rhythm, one must conclude that there is little digitalis in the solution. The latter may contain some digitalis activity

* Read before Scientific Section, A. Ph. A., City of Washington meeting, 1920.

and is certainly toxic but from causes other than the digitalis glucosides. This case is not a probable one, but it is always possible.

But you say again what connection is there between the dose that will kill a frog and the therapeutic dose? None whatever! Neither is there any connection between the amount of acid used in titrating an alkaloid and the dose of the alkaloid in any particular case. The conditions are parallel, except that in the chemical assay it is possible to have a reagent of known strength or purity while in the biologic assay the reagent—the animal—is a variable factor and must be checked up for its sensitiveness at time of assay.

A knowledge of pharmacology must precede biologic assaying. The drug must first be studied carefully on animals to determine in what respects it is most active if it has more than one typical effect. Among these effects one is to be selected as being typical and measurable, that is, showing degrees of activity dependent on the size of the dose.

But, you say, pharmacologists do not agree among themselves! They are not able to decide which is the most accurate test. That is unfortunately true. This, however, may not be a serious objection for each investigator uses the method best adapted to the equipment of his laboratory and to his mental attitude.

It is not illogical at this point to note some of the different reactions which follow the administration of drugs.

Digitalis slows and strengthens the heart beat and raises blood pressure by its action on the arterial walls. In toxic doses it causes arrhythmia, heart-block and, finally, death. In frogs the heart stops in systole with a dose somewhat less than that which causes death. At death the heart is in systole, which is typical of the digitalis series of heart tonics. Ergot both raises and lowers blood pressure because it contains principles which have opposite effects. It causes stasis of blood in the vessels. It acts on the uterus muscle, causing contraction. Cannabis sativa causes typical intoxication in dogs with incoördination, one of the most characteristic features, with lowering of temperature and drowsiness.

It is evident from the above why pharmacologists differ in their opinions as to which effect is most typical or capable of most exact measurement.

But a still more serious objection has been voiced—that one cannot conclude from the action of a drug on animals what its action will be on man.

Partly true again. But can one be certain that any drug will invariably have the same effect on one human that it had on another? Answering the objection that the test and the clinical results are unlike is best done by illustration. Antitoxin for diphtheria neutralizes the toxins of the disease. That is practically its only function. It is assayed by neutralizing a toxin. The potency of the unneutralized toxin is determined on pigs; then its decreased potency is measured after partial neutralization, known amounts of the toxin being treated with different amounts of the antitoxin until its potency is destroyed.

Pituitary extract activity is measured by its constricting action on muscular tissue, the stronger the solution the greater the constricting action. It is measured on the uterus muscles because it is used clinically to bring about contractions of this particular muscle. It is also measured on the muscles of the arteries because clinically it has application to overcome the collapse following operations. This seems to be directly dependent on the blood pressure.

Adrenalin and suprarenal extracts are not only used but also standardized as hemostatic agents. All through the list of the biologically tested drugs the same rule holds good—the method of testing runs closely parallel with some use of that drug in therapeutics. The only important difference is that while the biologic assay is based on the same reaction that gives the drug its therapeutic value, the therapeutic dose is often small in proportion to the assay doses: the latter must produce an extreme effect observable in a short time, the therapeutic dose an almost intangible immediate effect.

The logic of this objection is at fault because of confusing a quantitative assay with a qualitative or pharmacologic study of a drug. It must not be overlooked that the assay process is not a qualitative study. The pharmacology of the drug must have been studied first just as qualitative precedes quantitative analysis.

About this time some one should say "But you pharmacologists are always saying how uncertain the biologic test is because the animal may not react properly just when you want it to!" True, alas, curses come home to roost! But in extenuation of this remark it must be observed that if the one animal, or set of animals, fails to react properly, we are apt to paraphrase the expression about the "perversity of inanimate things" and try again. It should not be overlooked that tests on the human sometimes do not permit of a second trial.

But how about the chemical test? Does it never go wrong?

Some years ago Haskell, examining some tinctures of aconite, all of which were adjusted to standard by chemical assay, found that they differed greatly in activity when tested on animals. One was 10 times as strong as the weakest one. But they looked alike and the alkaloidal content was almost identical in all of them. The alkaloid, while retaining its characteristic chemical properties, had evidently suffered some change which lowered its toxicity and also its therapeutic value. Clinical results are difficult to obtain with a drug of this character. Would you still say that one cannot deduce the physiologic action from the effect on the guinea pig?

Has biologic assaying any limitations? Alas, yes! Not only do animals act erratically, sometimes responding to the drug with small doses and remaining immune to large ones in a truly human way, but we are at times obliged to ignore the most promising reaction of a drug because the effect is not measurable. For example, digitalis as a pressor agent, strophanthus, to measure its action on the heart directly, squill as an expectorant; even for the drugs commonly tested chemically we occasionally could use to advantage a measurable biologic test as a check but have no typical effect of this character.

Rusby says that many are skeptical as to whether the drug with the greatest power to kill a dog has the most value for curing a man. Thus baldly stated, the comment places biologic assay in an awkward light. Chemical tests may be more accurate but it is no more difficult to show them to a disadvantage than to make a disparaging statement about the biologic tests.

Which test gives more assurance, to weigh or titrate the alkaloid or to test its activity on an animal in the same sense that it is active as a medicinal agent? The opium content of a solution is measured by the amount of sulphuric acid required to neutralize while the identification of the active agent depends on the color developed when in contact with the concentrated acid.

To the uninitiated would it not be more reassuring if he were informed that a solution containing opium is identified by its sedative action on the dog and its potency measured by the amount required to put the dog to sleep in comparison with that of pure morphine or opium alkaloids?

The scope of biologic assaying is sharply defined with no function other than to measure the efficiency of remedial agents which must otherwise remain of unknown potency.

The applicability of biologic tests, however, is unlimited if taken in the qualitative sense. By no other means can one more certainly identify the active agent of a drug or determine whether a drug has an active principle.

For example, in working with a solution containing strychnine it can readily be determined by tests on animals whether a certain chemical manipulation has affected the active agent materially.

Biologic tests have still another function which is two-fold. For example, a statement was recently made that "The daily proof of the poor absorbability of strophanthus is had in the fact that the dose given in the Pharmacopoeia is the same as that for digitalis though the Pharmacopoeia requires that strophanthus shall be just one hundred times as active as digitalis."

This investigator failed to distinguish between two methods of administration which gives the complete explanation of this apparent phenomenon. Digitalis by mouth is less readily broken up in the stomach than is strophanthus, which must be administered in a relatively enormous dose in order that any may be absorbed before being acted on by the digestive ferments. When the active agents are intravenously administered, for example, into cats, dogs or pigs, comparable to that used in applying the frog assay method, or the cat method, the ratio of activities is not greatly different from the U. S. P. Standards.

This is a pharmacologic experiment which clearly demonstrates, first, the approximate correctness of the assay process; second, the proper method of using the different members of the digitalis series to get the full activity, promptly and without cumulative effects. Without animal experimentation neither of these facts could have been demonstrated.

Careful scrutiny of the ground which should be covered by the biologic assay processes and elimination of features which have no place there will do much to clear away certain logical criticisms.

Pharmacology is the study of the action of drugs by use of animals.

Biologic assaying is the use of animals as a means of standardizing drugs by comparing the action of two samples of the same drug, one of which is of known activity.

If we adhere strictly to this definition of the biologic assay it will eliminate most of the objections which have been most raised.

There is no crying demand for information based on animal experimentation as to proper human dosage. Each individual is a separate problem for the physician and no elaborately worked-out dosage on the cat or other animal is of more than academic interest. But every one who is familiar with the variability of the crude drug and with the opportunities for errors and loss in preparing extracts knows that some method of standardization must be applied if possible. And what is more logical than a biologic test which not only measures effectiveness, although sometimes crudely, but also follows closely the therapeutic action of the drug?

A SIMPLIFIED LABORATORY METHOD FOR THE DETERMINATION OF THE PHENOL COEFFICIENT OF DISINFECTANTS.*

BY ALBERT SCHNEIDER.

The need of a simple and practical method for determining the germ destroying power of the disinfectants has become apparent to all laboratory workers familiar with the various attempts at the standardization of these products. The older methods which have been employed from time to time are entirely too cumbersome and too expensive for practical purposes. There are in fact very few laboratories that make any pretense at the determination of the phenol coefficient or of the toxicity coefficient. The silk thread method (Robert Koch) and the garnet method (Koenig and Paul) were for a time extensively employed in Germany; the Rideal-Walker and Lancet methods were popular in England; and modifications of these methods, as the Anderson-McClintic (U. S. Public Health Service) method and the Ohno-Hamilton (Parke, Davis and Company) method, have been used in the United States. These several methods call for special equipment, special technical skill and the difference in result is great. Two workers of apparently equal ability may get results varying from five to thirty percent, a difference entirely too great to make the method practical or to entitle it to the distinction of standard.

Without entering into a discussion of the special uses and special properties of disinfectants, an outline of a method is given which is simple, easy, and which gives results fully as valuable and as reliable as those by the older methods and having furthermore a much smaller error factor. The method is outlined as follows:

1. *The Test Organism.*[1]—The test organism used is an approximately pure culture of *Paramecium caudatum.* The stock culture may be readily maintained in a gallon or half gallon museum jar, kept about two-thirds full of equal parts of filtered horse manure extract and well or tap water. Paramecia are essentially vegetarian in habit and can readily be maintained in such a solution, merely adding a small amount of fish meal ("Welesco" or other brand or Zwiback or hard, dry rolls may be substituted for the fish meal) from time to time. The jar should be thoroughly cleansed once a month and a new culture started. It takes about two weeks to get a

* Read before Scientific Section, A. Ph. A., City of Washington meeting, 1920.

[1] *Paramecium caudatum* is the most common infusorium in stagnant water. It is comparatively large, measuring from 150 μ to 325 μ in length. The cell is spindling in form with a deep oral groove on one side which takes a spiral course. The entire surface of the cell is covered by cilia, those at the anterior end and about the oral groove showing the greater activity, while those at the posterior end of the cell are longer but less active. Each cell contains two contractile vesicles with radiating canaliculi and Vorhöfe, which invariably contract alternately. The vesicles are located one nearer each end and nearer the dorsal surface. Near the center of the cell is a large but not very distinct nucleus. The cell contains numerous so-called food vacuoles and granular matter. The spiral groove enters the cell and ends as a blind sac at the lower three-fourths.

The paramecium feeds upon bacteria and other organic matter found in stagnant water. It is therefore a scavenger organism and is useful rather than harmful. Types of paramecia are found in the intestinal tract of aquatic animals, as fish, frogs, eels, salamanders and water snakes, but whether these associates are harmful or beneficial to the host is not definitely determined. Paramecia multiply by transverse septation as a rule. They may also septate in the long axis of the cell. Conjugation appears to be isogamous.

This organism may be obtained from stagnant water, from ponds and ditches, from long standing pools, from aquaria, and from the cultures in the biological laboratories of high schools and universities.

culture well started. From this stock culture make the 48-hour transfer or sub cultures, in 25 Cc. beakers, by pouring in 15 Cc. of the mixture of horse manure extract and tap water, with one teaspoonful of the stock culture, adding about 1 Gm. of broken fish meal or hard bread crust, and set aside at the room temperature. In 48 hours the sub culture will be ready for use.

The stock culture should be examined from time to time. If abundant dead paramecia are found, it indicates that conditions are not suitable. The trouble should be located and corrected. The occasional emptying and cleansing of the stock culture jar is necessary to prevent the excessive invasion by bacteria and infusoria. Associated organisms, such as amebas, rotifera, other species of paramecia, bacteria, etc., do not interfere with the tests. The cultures should, however, be comparatively pure and should be kept so.

2. *Making the Mixing Loop.*—Use 1 mm. wire (platinum or alloy). Bend one end into a circular loop having an internal diameter of just 3 mm. Fasten the other end into a glass rod or other convenient holder. The wire should be about 6 cm. long, and the loop must be closed or very nearly so. If the loop is left fairly open it will not take up and hold the drop. Silver wire may also be used, as it is not necessary to expose it to high temperature. Copper wire may not be used, because of the fact that this metal becomes colloidally diffused very readily.

3. *Making the Loop Mixtures.*—Take up one loopful of the solution to be tested and deposit it upon the middle of a clean slide. See that the loop is completely emptied. (There must be no film remaining across the mesh of the loop.) It may be necessary to touch the loop upon the slide several times to empty it. Rinse the loop in water and heat to dryness in Bunsen flame. When cool take up one loopful of the paramecial culture and add it to the loopful of the solution already upon the slide and mix the two loopfuls. The loopful of the culture should contain from three to six active test organisms. No cover glass is used.

Examining the Loop Mixture.—At once place the slide containing the loop mixture on the stage of the microscope and examine under the low power (90 diameters) and note results.

The tests are to be made at the room temperature at about 20° C., and away from air currents and from direct sunlight. Trial dilutions may also be made by means of the standard loop. Thus two, or even more, loopfuls of the trial solution of a disinfectant to one loopful of the culture, or conversely one loopful of the disinfectant to two, or even more, of the paramecial culture will indicate roughly what the next trial dilution (of disinfectant which is being tested) shall be. These trial loop dilutions and concentrations in the hands of a skilled worker are great time savers, making it possible to arrive at conclusive results quickly. We will suppose that the analyst has made the usual loop mixtures of a 1 : 500 dilution of some disinfectant (or 0.2 percent) and the paramecial culture and finds that the test organisms are promptly killed within one minute. He may next try one loopful of the disinfectant and two loopfuls of the paramecial culture which would roughly give the same results as though he had used a trial dilution (of the disinfectant) of 1 : 1000. The results may show that the test organisms are retarded in their activities but not killed within three minutes. This would suggest a dilution of 1 : 800 for the next trial, which would probably be fairly near the actual killing dilution.

It is self-evident, that according to the manner of making the loop mixtures of the disinfectant and the culture, the dilutions and also the percentages as given in the table are not the actual killing dilutions and percentages for the paramecium. One loopful of the disinfectant and one of the paramecial culture, dilutes the former one-half. Thus the actual killing dilution of phenol is about 1 : 1000, instead of 1 : 500 as given.

4. *Minimal Killing Dose.*—That percentage solution of the disinfectant tested which will kill all of the paramecia present within three minutes of time in three successive mounts, but not within one minute of time, shall be designated as the minimal killing dose (M. K. D.).

The Trial Dilution of the Disinfectant to be Tested.—All dilutions are to be made with distilled water.[2] (*a*) *If a Liquid.*—Make a trial loop mixture of the undiluted substance. If death is instantaneous, make a 1–1,000 dilution. If death is very prompt or practically instantaneous, make a 1–100,000 mixture and test as before. Let us suppose that with the 1–100,000 dilution all paramecia die within one minute, a few having died immediately. Then

[2] For making the percentage dilutions, carefully graduated 1, 2 and 5 Cc. pipettes and graduated mixing cylinders are required. Small amounts of the mixtures to be tested are poured into watch crystals from which the loopfuls are taken. All dilution mixtures must be thoroughly shaken before using.

next try the 1–125,000 dilution, and it may be found that the 1–125,000 will kill within three minutes, but not within one minute.

(*b*) *If a Soluble Solid.*—Make 1:10 or 1:100 dilution in distilled water and proceed as for liquid disinfectants.

5. *The Phenol Standard.*—Make a 1 percent solution of pure phenol (crystals) solution in distilled water, and determine the M. K. D., in the manner described. This M. K. D. shall be the standard of comparison, or the phenol standard, given as 1. The phenol coefficient of the compared disinfectants is obtained by dividing its killing dilution by the killing dilution of pure phenol. Thus, we get as the phenol coefficient for lysol 800 ÷ 500 = 1.60, and for borax 110 ÷ 500 = 0.22. (See table.)

6. *Determining the Death of the Test Organism.*—The behavior of the test organism toward the test solutions may be briefly stated as follows:

(*a*) Excitation—temporary. Increased rate of motion, followed by

(*b*) Retardation of motion, slowing and even complete inhibition of the vesicular pulse, then,

(*c*) Slow progressive motion with axial rotation; spinning top motion.

(*d*) Cessation of motion, and,

(*e*) Projection of peritrichia, with

(*f*) Protrusion of vacuoles, which invariably means death.

If death is very sudden, there is generally no plasmic contraction and the outline of the organism remaining about normal. If death is gradual, there may be plasmic contraction and more or less cell distortion.

7. *Adjusting the Bacillus Typhosus Phenol Standard and the Paramecium Caudatum Phenol Standard.*—The phenol killing dilution for the *Bacillus typhosus* is 1 : 80, while the comparative phenol killing dilution or percentage of phenol for paramecium must be increased nearly six times in order that it may prove efficacious against *Bacillus typhosus*, or fully six times that amount if a little allowance is made for good measure. Such adjustments are not required in practice since the essential fact to be determined is the relative killing powers of the disinfectants in comparison with pure phenol. As is known the *B. typhosus* phenol killing dilution, namely 1 : 80 (1.25 percent) is not the strength solution employed in practice, rather double that strength, or even more is used. As a surgical dressing and for the purpose of active sterilization, a 2.5 or a 5 percent phenol solution is generally employed.

Pure phenol carefully applied to an infected wound or tissue through its albumin coagulating properties, sears the surface of the tissue covered and the phenol is held there and then slowly osmoses into the deeper tissues at the rate of about a 5 percent strength. This somewhat theoretical deduction has given apparent justification to the, in some instances, reckless use of pure phenol for the purpose of tissue disinfection. Numerous cases of phenol intoxication have followed this use of pure phenol, especially when applied to mucous membranes from which absorption is rapid. However, these special behaviors of disinfectants have nothing to do with the methods for determining the relative germ destroying powers of the several disinfectants.

On comparing the M. K. D. by the method outlined it will be found that the dilutions are universally higher than the dilutions which will kill the typhoid organism used in the methods of the U. S. P. H. Service and of Rideal-Walker, but the comparative results are nevertheless closely similar. It is not intended to imply that the killing dilution for paramecia is also the killing dilution for pathogenic bacteria, but the comparative results are apparently closely similar and the results obtained are as useful as far as giving indication of the comparative germ destroying power of the various disinfectants is concerned, as are those by the more tedious and difficult older methods. Paramecia appear to be especially susceptible to the action of the solutions of the heavy mineral salts, as may be seen from the

results with mercuric chloride, silver nitrate and copper sulphate. It would appear from the tests made that the difference in the behavior toward solutions of disinfectants on the part of *Paramecium caudatum* and *Bacillus typhosus* is one of time rather than of greater or lesser resistance to the antiseptics. For example, while a 1 : 500 dilution of phenol kills *P. caudatum* within three minutes, this dilution will also as surely kill the typhoid germ within one hour of time. It will also be seen from the table that Paramecium is remarkably susceptible to the action of quinine sulphate.

The following are a few disinfectants and toxic agents which have been tested according to the proposed method. No attempts at accuracy were made, the solutions being made hurriedly and the reactions not very carefully checked, the work being done by students in the College of Pharmacy of the University of Nebraska, under the direction and supervision of the writer. A working laboratory method, in order to be practically usable, must be sufficiently simple to be carried out by investigators of average ability. The uniformity in the results by the different members of the entire class was striking. More carefully conducted tests are now under way with a view to determining the more exact killing dilutions and phenol coefficients.

TABLE OF M. K. D. AND PHENOL COEFFICIENT OF SOME DISINFECTANTS AND TOXIC SUBSTANCES.

Name of substance.	Dilution.	Percent.	Phenol coefficient.
Acetic acid	1:350	0.28	0.70
Alcohol	1:8	12.50	0.0016
Antiseptic powder N. F.	1:1000	0.10	2.00
Argyrol	1:400	0.25	0.8
Boric acid	1:110	1.10	0.22
Borax	1:110	1.10	0.22
Chloroform	1:200	0.50	0.40
Coffee	1:4	25.00	0.008
Copper sulphate	1:160,000	0.0006	320.00
Ether	1:37	2.70	0.074
Formalin	1:2,500	0.04	5.00
Hydrochloric acid	1:1,200	0.12	2.40
Lysol	1:800	0.29	1.60
Mercuric chloride	1:800,000	0.00012	1,600.00
Nicotine	1:200	0.50	0.40
Nitric acid	1:1,500	0.066	3.00
Phenol	*1:500*	*0.20*	*1.00*
Phenol sheep dip	1:1,400	0.07	2.80
Quinine sulphate	1:1,600	0.06	3.20
Silver nitrate	1:100,000	0.001	200.00
Soap (castile)	1:150	0.66	0.30
Sodium chloride	1:100	1.00	0.20
Sulphuric acid	1:4,000	0.025	8.00
Strophanthus	1:10	10.00	0.02
Strychnine nitrate	1:75	1.33	0.15

COMPARISON OF THE OLD AND THE NEW METHOD.

The Old Method.	The New Method.
Technic.	
Complex and difficult and much experience required. Plate cultures required.	Extremely simple. No special skill or experience required. No plate cultures made.

Equipment.	
Special equipment required. Cultures of the test organisms must be maintained at cost and with care.	Cultures of test organism are easily maintained. The only special device is the platinum loop.
Reliability of the Experimental Results.	
Results variable by the different analysts. Error ranging between 5 and 20 percent.	Results very uniform. Error ranging from 1 to 2 percent.
Time Factor.	
From 2 to 3 days required in which to complete the test.	Time required, 1/2 to 1 hour.
Cost Per Test.	
To test one disinfectant will cost from $50 to $150.	A charge of from $2.50 to $5.00 per disinfectant tested would be a fair remuneration for time and skill.

The method is believed to be fully as valuable as an indicator of the relative germ destroying power of disinfectants as are any of the older methods which are now largely rejected or considered so highly technical as to be practically inoperative, excepting in a few of the larger laboratories, and is at the same time so simple that a laboratory worker of average ability can test out any of the disinfectants the germ destroying power of which he may care to ascertain. The method as herein crudely outlined requires further careful working out as to the exact details. It has, however, been sufficiently tried out to justify this report. A number of details require careful consideration. For example, the evaporation of water and disinfectant from the loop mixtures on the slide requires further consideration. Thus far it has appeared that because of the brief period of exposure, namely one to three minutes, this factor may be ignored. Naturally, in the case of highly volatile substance as ether and chloroform (in water), the solutions become weaker and weaker with the period of exposure, whereas in the case of salt solutions, as mercuric chloride, copper salts, etc., the evaporation will result in an increase in the concentration. This possible source of error can be corrected by making vaseline sealed hanging drop mounts of the loop mixtures.

There is a very marked difference in the reaction of different species of Paramecium to the same percentage dilution of a given disinfectant, closely comparable to the difference in the reaction of different species of the group bacteria to the same disinfectant. A very minute species of Paramecium, a common associate of *P. caudatum* in the older stock culture, showed an unusual resistance to disinfectants. Strength solutions which killed *B. caudatum* within two minutes produced no appreciable lessening in the activities of the dwarf associate.

No tests were made to indicate the change in the reaction to disinfectants in the presence of albuminous matter, nor are such tests of any special significance, as it is generally known that the presence of albuminous matter interferes to a very marked degree with the action of disinfectants. This interference is, therefore, proportional to the amount of albuminous matter present and the albumin coagulating power of the disinfectant itself. A method for determining the albumin coagulating power of disinfectants has been given in full elsewhere. (Bacteriological Methods in Food and Drug Laboratories. P. Blakiston's Son & Co. 1915.)

The test organism used in the proposed method is as valuable as is the *Bacillus typhosus*, as an indicator of the germ destroying efficiency of disinfectants in gen-

eral. As is known to all bacteriologists, there is a wide range in the susceptibility of one and the same disease germ of the bacteria group to different germicides, and on the other hand the different disease germs respond differently to one and the same disinfectant. Thus for *Bacillus dysenteriae* the phenol coefficient with pyxol (a crude phenol) is 18.00, 20.00 for *B. typhosus*, 30.00 for *B. diphtheriae*, 41.5 for *B. pestis*, 56.00 for the Koch bacillus of Asiatic cholera and 57.5 for the Meningococcus. Just because a given strength solution of a disinfectant kills the *B. typhosus* within a specified period of time, does not prove that the same solution will also kill the pathogenic streptos or the pus formers. It must, however, be admitted that the tests made according to the methods of Rideal-Walker and of Anderson-McClintic have indicated and proven to the satisfaction of all scientists, that certain substances are efficient, in the comparative sense, for the destruction of microörganisms, pathogenic as well as non-pathogenic, whereas others are comparatively inert. This very important information may be ascertained by the proposed method with equal certainty and reliability and in a greatly simplified manner and at a greatly reduced cost per test. The proposed test does not give any indication as to the special value of the disinfectants tested for the purpose of wound sterilization, nor as to the effect upon phagocytosis, or upon the formation of granulation tissue, nor does it indicate the relative toxicity of the various disinfectants; but neither do the other methods mentioned. It may here be stated that the Paramecium was originally selected with the hope that it might serve the purpose of measuring the relative toxicity of the disinfectants, on the supposition that the comparative complexity (morphological as well as physiological) of this single-celled organism might impel this organism to respond to toxic agents in a manner indicating parallelism with the effects of toxic agents upon the higher organisms, as mice, guinea-pigs and rabbits, which are the animals now employed to some extent for such determinations, as in the Worth Hale method. The tests with such highly toxic substances as strophanthus, nicotine and strychnine, demonstrated at once that Paramecium was no more susceptible to such agents than are the group of bacteria. There are indications that the test organism will give much valuable information as to the manner in which the different disinfectants kill, as may possibly be observed from the extremely variable reacting behavior toward disinfectants. This phase of the experiments will not be touched upon in this report. The writer is furthermore not sufficiently familiar with the morphology and the physiology of the organisms to even interpret correctly the many varying responses which were noted in the limited tests made. Thus the heavy mineral salts kill without any plasmic contraction, whereas alcohol causes marked plasmic contraction. Some disinfectants cause marked temporary stimulation as is indicated by the increase in motion and in the pulse rate of the contractile vesicle, just prior to the changes which soon end in death. There is also indication that Paramecium does react toward toxic agents of the non-metallic kind, such as the alkaloids and glucosides in proportion to the relative toxicity of such substances, as may be seen from the table. Further carefully conducted tests along this line are necessary.

Paramecium may also be employed experimentally in making tests with plasmic poisons, leucocytic poisons and cell poisons generally. The method herein outlined also promises to be of great value in testing and standardizing the value

and efficiency of amebacides. An endless series of interesting experiments suggest themselves. It is certainly reasonable to suppose that a skilled and experienced investigator can derive vastly more information from a series of tests and observations made upon a comparatively complex organism of which the multitudinous and highly complex reaction behaviors are constantly before the eye, than from a series of tests which reveals nothing more than an indication of either death or no death, as in the older methods for the determination of the phenol coefficient. Undoubtedly the proposed method will in time give us more accurate information regarding the manner in which the different germicides and disinfectants cause death. A few observations made upon Paramecium in the presence of toxic agents under the ultramicroscope would indicate that this method will disclose many interesting facts regarding the behavior of toxic and germicidal substances *via* the realms of colloidal chemistry, in which the beginnings have already been made. It is for example known that bacteria suspended in liquids behave as negatively charged colloids and are, therefore, driven to the anode end of the electric current. Bacteria are precipitated by the ions of the heavy metals and they take up certain of the disinfectants according to the law of adsorption. Disinfectants may kill by virtue of forming chemical compounds within the bacterial cell, or they may kill because of the precipitating effects upon the plasmic proteins, or through the adsorption and subsequent absorption, osmosis and chemical decomposition of the chemically or physically (colloidally) active ions.

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ABSTRACT OF DISCUSSIONS.

The foregoing paper was discussed by Drs. Bernard Fantus, Horatio C. Wood, Jr., and H. C. Hamilton. It was the consensus of opinion that the weak point in the present methods is that they have no practical application. The effectiveness of a given disinfectant varies to a very great degree with the organism upon which it is allowed to act. A disinfectant might be very effective in killing streptococci but almost useless against *Bacillus typhosus* and *vice versa*. One of the objections to the method of testing disinfectants as proposed by the Hygienic Laboratory of the U. S. Public Health Service is the high cost of conducting the test. The need for a more satisfactory and practical test was generally conceded.

SOME OBSERVATIONS RELATIVE TO TRAINING IN DRUG ANALYSIS.*

BY C. O. EWING.

When your chairman suggested the preparation of a paper dealing with the teaching of drug assaying and analysis, it seemed to me that the request would more properly have been addressed to one who had had more collegiate teaching experience. Upon further consideration, however, it occurred to me that it might not be amiss to point out certain phases of the subject that some years of Federal and commercial experience have accentuated.

With regard to preliminary training, drug analysis, even in a semi-routine control laboratory, is an occupation requiring a broad general training. It is

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* Read before Section on Education and Legislation, A. Ph. A., City of Washington meeting, 1920.

not at all comparable to certain types of analytical control work in the steel and rubber industries, where a comparatively uneducated person can quickly be taught to run through a standardized procedure day in and day out. In the large pharmaceutical houses the type of work required is much more diverse. The laboratories with which I am at present connected, for instance, assay regularly a thousand or more different crude drugs and chemicals, in addition to a larger number of finished products. With such diversified work it is obvious that a wide knowledge of analytical methods is required, as well as a broader outlook than is generally possessed by one who has not had a complete high school and collegiate training. The same is true of Federal, State, municipal and consulting laboratories where much drug work is done. In the analysis of proprietary preparations, for instance, not only must the analyst be well grounded in general, organic and inorganic chemistry, but he should have as well a knowledge of such widely separated subjects as microscopy, materia medica, physics and bacteriology. The Bureau of Chemistry recognizes the importance of these supplementary subjects and requires of its employees a B.Sc. degree from a recognized college or university or its equivalent, and this in turn generally implies a preliminary general high school training. We have observed too that it is easier to develop a good drug analyst from a well-grounded chemist than from a graduate of a short pharmacy course of two or even of three years. At present, we but rarely consider any applicant who has not a Bachelor degree from a first-class college or university or its equivalent.

In view of the supplementary knowledge required of a drug analyst, it follows that no student is ripe for drug assaying until the third or, preferably, the fourth collegiate year. After all, drug assaying is but the practical application and amplification of the fundamental principles of the other studies mentioned and especially of qualitative and quantitative inorganic and organic chemistry. Therefore, adequate laboratory courses in these subjects are absolutely essential before a course in drug assaying can be attacked with the proper degree of understanding.

In the teaching of drug assaying we cannot follow the general procedure generally pursued in teaching the prerequisite studies previously alluded to. In the latter it would be folly to attempt to force large volumes of facts upon students to the exclusion of adequate considerations of general principles. While a course of drug assaying should be so designed that the students are forced to do correlative studying in standard reference texts, it should provide a maximum of time for actual laboratory practice. The general principles of any particular exercise can be briefly reviewed, leaving the major portion of the session, which should extend over three or four hours, for practical laboratory manipulations. The personal contact of a good laboratory instructor with the individual as the special problems arise is of more lasting benefit than general lectures and subtracts less time from actual laboratory manipulations. The theoretical aspects of the exercises can be cared for by the correlative reading and the quizzing of the laboratory instructor.

With regard to the shortcomings of graduates of courses as constituted at present, the most frequent and most serious criticism is the lack of appreciation of the value of accurate and comprehensive notes. Notes will be taken on a scrap

of paper, the back of an envelope, anywhere but in a note book—I have even seen a young lady take notes on a paper cuff improvised to protect the sleeves of her dress. These notes are apt to be lost or incorrectly transcribed. Moreover, in a case at law transcribed notes would have no legal standing whatever. Original notes only are accepted in court. In writing up a report after the completion of an investigation, it is well enough to transcribe notes and very desirable to have a systematic, orderly presentation of the data obtained, but during the actual investigation too much stress cannot be laid upon the taking down of all original data in a permanent notebook. The student should be taught that it is no disgrace to have his original notebook show a "lost" determination. Too often the knowledge to be gained from a negative result is overlooked. This is especially apt to happen if the original notes were not taken in a permanent notebook, for more often than not the data will never be permanently recorded.

The next most striking observation regarding inexperienced analysts is their almost unanimous neglect of the qualitative possibilities of their nose and mouth. Many a young worker will go accurately and painstakingly through a long chemical analysis, when a smell or taste will show such an analysis to be superfluous. Of course, one should use discretion in the indiscriminate tasting of drugs and pharmaceuticals, but the potentialities of the senses should be further accentuated in a course in drug assaying. These are the tests, together with sight and touch, to which a pharmaceutical, especially, will be subjected by the ultimate consumer; if it fails in respect to these tests, it may comply with the requirements of all the pharmacopoeias extant to no avail.

Another phase of the subject that should be stressed is the value of comparative tests on standard samples. The official descriptions are not always sufficiently explicit or delimiting; it sometimes happens, therefore, that a sample will answer to the stated requirements and still not be a normal product. For this reason, it is very desirable and advantageous to have as complete a museum of U. S. P. and N. F. articles as possible and compel the students to use them. Standard samples are especially useful also for practicing the organoleptic tests mentioned in the preceding paragraph.

With regard to physical tests, such simple operations as melting and boiling point determinations, specific gravity and refractive index are generally well taught and understood by the graduate, but the same is not always true of the use of the polariscope and microscope. Too many workers fail to appreciate and have frequent recourse to these invaluable accessories for drug analysis, a fault which could be partially overcome by more adequate presentation in the drug assay course.

The chemical assays are apparently well presented, the only type requiring special mention being the alkaloidal assays. These, of course, are largely empirical and require careful and painstaking manipulation. In this work more than in any other is long continued practice necessary; it should, therefore, receive more attention than any other part of the course, especially since it involves manipulations not usually dwelt upon in the prerequisite courses.

In my opinion, biological assays should not be included in the laboratory work of a regular drug assaying course. They are so distinct from all other assay processes and require such a knowledge of physiology and anatomy, as well as

considerable expensive and complicated apparatus and experimental animals, that they could not conceivably be adequately presented as part of a regular course; the subject would, in fact, constitute a very respectable course in itself and, if presented at all, were better done by a medical school. This practice is followed at present in some universities which have colleges both of medicine and pharmacy.

In the foregoing no mention has been made of the number of exercises that should be assigned a class. Suffice it to emphasize again the value of repeated practice of laboratory manipulations. This end can only be attained by assigning a considerable number of exercises. An excellent incidental feature of such a procedure is the opportunity which it presents to teach the art of laboratory management, a valuable attribute infrequently possessed by students.

In conclusion, it is not desired to leave the impression that the theoretical aspect of the work should be slighted; on the contrary, the student should be encouraged in every way to resort to the standard textbooks and journals. It is desired, however, to emphasize that a course of drug assaying should be primarily an intensive laboratory application of fundamental principles acquired during prerequisite courses and that such a course should be designed to provide a maximum of actual laboratory practice in the time available.

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HOW TO OVERCOME INDIFFERENCE CONCERNING STERILIZATION IN DISPENSING.*

BY A. W. LINTON.

It may seem like carrying coals to Newcastle to offer a paper dealing with sterilization in dispensing to the American Pharmaceutical Association. We may safely assume that the members of this body are well informed on the subject. With them it requires no argument to prove that all solutions intended for hypodermic and intravenous injection, solutions for application to the eyes and to inflamed and irritated membranes, as well as many dusting powders and ointments, should be dispensed in a sterile condition.

That the importance of sterilization in pharmacy has been well understood for years is evidenced by the splendid discussion of that subject in the fourth edition of the National Formulary, as well as by the briefer treatment in the Ninth Revision of the Pharmacopoeia. Recent editions of many textbooks on pharmacy and dispensing include chapters on sterilization as applied to pharmacy. During recent years numerous valuable articles on sterilization have appeared in the journals. There have appeared texts on bacteriology intended especially for the use of the pharmacy student, and these give excellent treatment of sterilization. It must be agreed then, that ample opportunity has been offered to those who would inform themselves as to the best methods to be followed in sterilizing medicinal preparations. It is true that even after a careful study of the authori-

* Read before Section on Education and Legislation, A. Ph. A., City of Washington meeting, 1920.

ties has been made, cases arise which are puzzling; as for example, which method is to be recommended when the solution to be sterilized contains an alkaloid easily decomposed by heat. Even in such cases, however, valuable assistance is obtainable if one only looks for it.

However, of what value is all of this available material on a vitally important subject if the pharmacist remains indifferent to the whole matter? It may be that the writer is taking too pessimistic an attitude, but he is much inclined to believe that in a majority of the stores in which prescriptions are compounded there is absolutely no provision made in the way of equipment for sterilization and little or no thought is ever given to the subject. At least this is true on the Pacific Coast. It is to be hoped that in this respect conditions are much better in the East.

How many pharmacists, east or west, are giving as much thought to the matter of dispensing in sterile condition those preparations which should be so dispensed as they are to the sanitary condition of their fountains? Heaven forbid that we should oppose the most careful attention to sanitation in the soda department, but in the name of Pasteur and Lister why not give some thought and study to proper methods of dispensing? Is it only in the far Northwest that many pharmacists are ignorant of or indifferent to the pharmacopoeial standards for sterile distilled water and physiological salt solution? Are there not many druggists, even near the educational centers of the East, who if they undertake to dispense a sterile solution are content to use distilled water purchased weeks or months before and stored with no special precautions. Is it possible that we may even be able to find a druggist who when asked whether he ever uses distilled water in dispensing, points with pride to a pint bottle containing what purports to be distilled water, but which contains a sediment calculated to arouse suspicion; said pint bottle and contents, if the truth were but known, having been included in the invoice taken when the store changed hands some years before?

These horrible examples are not greatly overdrawn. A pharmacist who enjoys considerable repute as a prescriptionist, in speaking to a new clerk in regard to dispensing a certain solution, referred to the distilled water in the stock bottle as "sterile water." The clerk asked: "That *is* sterile water, is it?" The reply was: "Well, I don't know, but I suppose it is. I bought it for distilled water." The water in question had been on hand for some time and the cork had been removed from the bottle many times. A pharmacist who makes on the manufacturing scale a solution to be used as a gonorrhoea injection, was much puzzled because in some lots an unsightly sediment appeared in the bottles. On examination, this sediment, which he called a precipitate, showed every appearance of a fine crop of molds. Inquiry developed that although the solution was non-alcoholic and contained practically nothing which might be supposed to serve the purpose of a preservative, no thought had been given to sterilization of bottles, corks or solution. And yet this pharmacist considered himself quite competent to recommend a remedy for a germ disease! A physician who specializes in the treatment of eye, ear, nose and throat, told the writer that an ointment which he prescribed for application to the conjunctiva of a patient, very soon after the first application caused an inflammation ten times more severe than the one which existed before the ointment was used.

To the writer it would seem that no pharmacist is a safe prescriptionist who is giving no thought to the subject of sterilization. He believes that a pharmacist, even though he has the certificate issued to him by a state board hanging in his store, has no moral right to hang out a sign reading, "Prescriptions Carefully Compounded," as long as he is wholly indifferent to sterilization. We will gladly allow for differences of opinion in regard to cases in which sterilization is necessary, and as to best methods to be employed, among those who have studied the subject, but cannot trust the man who is too ignorant, too careless or too lazy to give some thought to sterilization. If a surgeon, through carelessness in technique, allows his patient's wound to become infected, he is not a safe operator, no matter what degrees he may have or what skill he may possess. What shall be said in defense of the pharmacist who ignores those teachings of bacteriology which apply to his own calling?

We may divide into three classes those pharmacists who are negligent of sterilization. We mention first the old-time druggist, who took up his lifework many years ago when colleges of pharmacy were not so numerous as now, and when micro-organisms did not cause the human race as much concern as they do at present. Something might be said in excuse of this man's scanty knowledge of the need of sterilization, and yet would you condone the elderly physician who failed to sterilize his hypodermic needle? The old doctor did not learn the need of this in school, but he has not failed to keep pace in some measure with the advance of science. The pharmacist who registered back in 1881, or when his state first passed a pharmacy law, if he had read the journals would not have remained uninformed. And to the credit of these older men be it said that many among them have not failed to measure up to the demands made upon them by the advance of a third of a century.

We have also the men of a somewhat younger generation who did attend college, but before courses in bacteriology were commonly included in the pharmacy curriculum. Too many of these considered that when the pharmacy diploma and the state board certificate were framed and hanging over the prescription case, their education was a finished thing. Some of these, although during the last fifteen years they have learned much about how to collect bad accounts and how to train clerks to be good salesmen, have learned little or nothing which makes them better dispensers.

Saddest of all to consider, however, is the case of the recent graduate of a good college who has received adequate instruction in bacteriology and in the methods of sterilization, but who utterly fails to apply what he learned at college. Six months after graduation he is saying: "Old Pillroller has three good stores and fills lots of prescriptions, and never yet spent a dollar for sterilizing equipment. What old Prof. Dryasdust gave us about sterilization must have been hot air. What is good enough for Pillroller is good enough for me." Well, perhaps, old Dryasdust is, in part, to blame. The writer would be glad to think that he could instill into his students some of the fighting spirit manifested by a young lady who graduated a year ago from dental college. She was taken into the office of her father, a prominent dentist with a very large practice. The young lady soon found that in her father's office the matter of sterilization of instruments and solutions was not receiving proper attention. She was told by

her father and his assistants that their methods had proved to be all right and that she must forget a lot of the fool notions that no one thought of but college professors. But the young lady refused to be silenced by ridicule, and stirred up such a commotion that just to keep peace in the office her father allowed her to have a free hand in everything pertaining to sterilization.

What agencies may be employed to arouse the careless and indifferent ones to the importance of sterilization? We mention first the colleges. Most colleges of pharmacy now include a course in bacteriology in their curricula. This is exceedingly important, and such courses should be made as thorough as possible. Without at least an elementary knowledge of bacteriology the student cannot have an adequate conception of the reasons for sterilization and for the precautions observed in carrying it out. Without the knowledge of technique gained in the bacteriological laboratory he is likely in sterilizing a solution to be exceedingly careful about certain details and neglectful of the most essential. But the instruction received under the professor of bacteriology is not sufficient. In many schools the teacher of this subject, while eminent in his own science, does not have pharmacy training, and consequently does not make the application of sterilization and other phases of his subject that would be most useful to the pharmacy student. In the prescription courses the student should find the application of many things that he has learned in bacteriology to his chosen field of work. He should be given practice in sterilizing solutions and other classes of extemporaneous preparations by all available methods. In the lecture room and quiz class there should be ample discussion of the methods employed and the relative merits of the same. In the time usually allowed for prescription work in the two year course it is difficult to give adequate attention to the subject of sterilization. When the minimum length of a course in pharmacy has been extended to three years we may expect to see this condition corrected.

Almost as important as the work of the colleges must be that of the journals. They must be depended upon to educate those whose college days are past. Many articles on sterilization have been published, but the good work must continue. Very helpful would be articles illustrated by cuts of apparatus, especially if this be home built and not too complicated in construction. The editorial columns can be used to good advantage to remind the unprogressive pharmacist that the world is not standing still.

State associations can also play an important part in the campaign of education for more attention to sterilization. Officers of these associations and chairmen of committees on papers can endeavor to secure contributions dealing with the subject. These will be more interesting and will make a more lasting impression if they are accompanied by exhibitions of apparatus and demonstrations of methods.

While the colleges, the journals, and the associations, are endeavoring to educate the pharmacist to the importance of sterilization, the state boards should make it their business to test the knowledge of the applicant for registration on this subject. Surely it is not too early to require that the candidate for the privilege of conducting an establishment where medicines are dispensed shall be quite well informed in regard to the need for sterilization, and be prepared to carry out the various methods. Some state boards of pharmacy already examine candi-

dates on bacteriology. It may be questioned whether such an examination serves a useful purpose as long as the questions asked are such as can be answered by the study of a quiz manual. A candidate may be able to define bacteria and to classify them into groups, and still have no knowledge of bacteriology which will make him a more intelligent dispenser. Would it be unreasonable to ask the applicant for registration to actually perform in the laboratory the operations incident to dispensing a two percent solution of cocaine hydrochloride in sterile condition, or a solution of camphor in fixed oil suitable for hypodermic use?

Some may think that the writer is exaggerating the importance of this campaign for educating pharmacists in regard to sterilization. To such he would say that pharmacists as a class cannot hope to be generally recognized as professional men by other professions and by the public until they are willing to inform themselves upon, and to apply in their every day work, those sciences which have a direct bearing upon dispensing pharmacy. If we are content to remain indifferent to the ever changing demands made upon us by the progress of medical science, then we have no just cause to complain if the drug store continues to be a joke in the opinion of many.

In this campaign we may appeal not only to professional pride but to the commercial spirit. Many physicians are compelled to make sterile solutions in their own offices for which they would be only too glad to pay the pharmacist, if there was one in the neighborhood who was prepared to give proper attention to these. Most doctors who administer arsphenamine are willing to pay the pharmacist a dollar more than the cost of the ampoule for making the solution and furnishing the normal saline solution which is used with it. The dispensing of arsphenamine does not require elaborate equipment but does require care, and some knowledge of sterilization methods. The pharmacist who is willing to give proper study to the subject of sterilization will be rewarded, not only by the knowledge that he is performing a most important service for his community, but, in many cases at least, by a larger amount of business of a professional character than he had believed obtainable.

It is to be earnestly hoped that the colleges, the journals, the associations, and the boards of pharmacy will join in arousing pharmacists from the present all too common attitude of indifference in regard to sterilization in dispensing.

A SIMPLE SUPPOSITORY DEVICE.

BY CASWELL A. MAYO.*

I wish to bring to the attention of the Section a very simple little device, which is not new, having been patented in 1916, but which may be new to many of the members. So far as I am aware it has not been described in the Proceedings of the Association nor in the pharmaceutical press.

The device is extremely simple, consisting of a single mould holding 30 grains of cacao butter and a plunger or ejector.

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* Read before the Section on Practical Pharmacy and Dispensing at the Washington Meeting of the American Pharmaceutical Association, May 7, 1920.

The suppository mass is made up cold in a mortar and is worked into the proper consistence with the addition of a few drops of castor oil.

Where an extract is used this must, of course, first be rubbed to a thin paste with water, alcohol, or glycerin, the scraped or grated cacao butter and other ingredients added, and the whole rubbed to a smooth mass of the proper consistence. The mould is then dusted thoroughly with lycopodium, the excess being shaken out, and the mould then pressed down into the mass until full. The ejector is then used to push out the finished suppository.

The only two possible causes of trouble are the failure to obtain the proper consistence of the mass, which if too brittle will break; and the heating of the device through the hand. In hot weather it is well to chill the mould in cold or ice water and dry before dusting with the lycopodium. There seems to be a great difference in the effect of the hands of different persons, some being able to handle the mould without heating it, while with others the mould soon becomes too hot

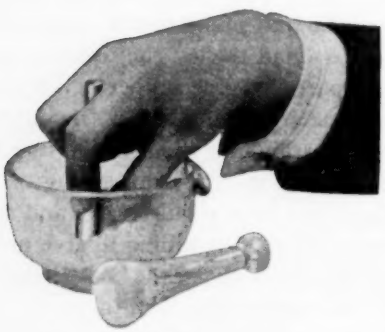

FIG. 1.

FIG. 2.

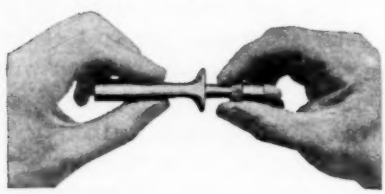

FIG. 3.

FIG. 1.—Cool the mould, dust with lycopodium and fill by pressing down into the mass.
FIG. 2.—Twist the mould and withdraw from the stem.
FIG. 3.—Reverse the stem and push the suppository out of the mould.

to work satisfactorily. This same difference has been observed, of course, in making suppositories by hand. In spite of these precautions, however, the suppository sometimes sticks, in which case a few drops of soap liniment should be poured into the mould, the excess poured out and the mould then dusted with lycopodium.

The suppository adheres to the end of the ejector and can be deposited in the box without being touched at all by the hands.

The apparatus is inexpensive, costing only about a dollar. It will be found a valuable addition to the armamentarium of the dispensing counter for use in preparing a small number of suppositories, in which case the larger and more complicated machinery would make the process tedious, as all the parts would require washing, putting away, etc. I should be glad to present one to any teacher who may care to use it for demonstration purposes.

LABORATORY OF THE WM. S. MERRELL COMPANY.

EXTEMPORANEOUS SUPPOSITORIES.*[1]

BY JOHN URI LLOYD.

In the year 1852, Dr. Wm. B. Chapman, a talented pharmacist of Philadelphia, joined the American Pharmaceutical Association, and in 1854 was elected President of the organization. In consequence of the fact that he had in the interim moved to Cincinnati, and could not make the journey to New York City, where the convention was held, he did not preside at the 1855 meeting, Mr. H. T. Cummings, first Vice-president, serving in his stead.

In Cincinnati Dr. Chapman quickly took a leading position. He was an educated and systematic pharmacist, ranking with Prof. Edw. S. Wayne, of Cincinnati, whose contributions at the early meetings of our association are so well known.

Preceding the year 1865 it was customary for Cincinnati apothecaries to make suppositories by pouring the medicated melted cacao butter into paper cones that rested in the mouths of wide-mouth bottles of appropriate size. This empirical and defective method led Dr. Chapman to devise and construct a metal mold which had the advantage of not absorbing either the cacoa butter or the medicine. This mold, however, under experimentation, possessed the disadvantage of sticking to the hardened suppositories, rendering it difficult to remove them.

Finally, Dr. Chapman struck upon a method that proved to be a perfect success, namely, that of putting the mold, before filling, on a cake of ice until it was thoroughly chilled, then breathing into the mold, which would deposit on its inner surface drops of water similar to moisture produced when the breath is blown upon a chilled window pane. Be it said that dipping the mold into water did not answer the purpose, mainly because of the fact that it was so difficult to remove the last traces of oil from previous manipulations. To this film of oil the water would not adhere, the fault being overcome by the deposit, in minute drops, of the vapor of the breath, which made an adhesion and perfect coat of water over the metal, preventing the mold from touching the suppository.

Dr. Chapman devised molds for two size suppositories, namely, the vaginal and the rectal suppositories, which, so far as this writer is informed, are yet standards, in practically the same shape and size.

At the semi-centennial meeting of the American Pharmaceutical Association, held in Philadelphia, the writer of this paper exhibited these molds, which he purchased from Dr. Chapman at the price at which they were furnished to Cincinnati pharmacists, *viz.*, $5.00 each. To this it may be added that Dr. Chapman made these molds personally, at spare intervals, and the wonder is, how, without a lathe, he could form them so perfect in size and shape.

It was the good fortune of the writer to have been engaged as a clerk, for two years, with Dr. Chapman, where, under the special direction of this enthusiastic

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* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., City of Washington meeting, 1920.

[1] This contribution is not designed as a historical study of Suppositories, which in itself would comprise a small volume. Nor is it intended to intrude on processes that, more modern, may possess advantages over the sixty-year-back mold and process, then considered all that could be desired.

apothecary, he was ever being taught the many phases of prescription pharmacy, the knowledge of which has since been to him a constant source of invaluable opportunities, the suppository problem as offered in this paper being a fragment thereof.

From the semi-centennial article presented our Society (above alluded to), the following extract cannot be bettered by the writer, and he consequently reproduces it intact, as follows:

"And now a word concerning the suppository business at that date. Dr. Chapman's method was first to make unmedicated suppositories and use these for subsequent medication, thus getting the remedy evenly divided into an exact number of suppositories. The method of manipulation was as follows:

"The suppository mold was placed on a cake of ice and allowed to become perfectly cold, which required a few minutes only. In the meantime cacao butter with ten percent of Japan wax was placed in an evaporating basin. When melted, the molds were breathed into so as to coat the inside with moisture, after which the mold was filled with the grease melted and cooled just to point of milkiness. When cold, the finger was pressed gently upon the top of each suppository which would loosen with a little snap and then upon turning the mold upside down and gently striking a piece of wood, the suppositories would fall out. This made the unmedicated suppository.

"A favorite prescription in those days was opium and extract of belladonna suppositories. With a powder such as opium all that was necessary would be the melting of the required number of plain suppositories, the addition of the powder, stirring the contents until the mixture cooled to a creamy consistence, when it was to be poured into the molds after the manner heretofore described.

"With an extract it was necessary first to soften the extract by means of a proper menstruum, then having melted the plain suppository and the softened extract, stir until reduced to a creamy consistence; then adroitly with constant stirring pour the suppository mixture into the mold. One experienced in manipulation could make suppositories of any combination whatever very quickly by means of this method and these molds."

To the foregoing, the writer of this paper presumes to add a suggestion to the effect, that in his opinion, one of the features of extemporaneous pharmacy to-day, that should ever be at the command of adjacent physicians, is that of suppositories freshly made, and to the physician's order. He takes exceptional pleasure, therefore, in asking the privilege of again placing before his audience the Chapman Suppository Mold, (with specimen suppositories recently made), that for several years he employed, while a prescription clerk. Although many devices for suppositories have been suggested during the intervening half-century since these molds were made, no better process, than to incorporate thoroughly the remedial agent, could be devised, and possibly, no better or cheaper mold produced.

Let us close by making an extract from the article by Dr. Richard V. Mattison, *Proc. Am. Pharm. Assoc'n*, 1875, p. 625, "On Suppository Molds," which, presenting the claims of nineteen devices, states: "The 'melting process' is esteemed by many as the only proper and perfect method of preparing Suppositories."

REVISION SUGGESTIONS FOR THE U. S. PHARMACOPOEIA AND NATIONAL FORMULARY.*

BY J. LEON LASCOFF.

A few weeks ago I presented a paper before the New York Branch, A. Ph. A., on "The Galenicals of the U. S. P. and N. F." In this paper an appeal was made to the U. S. P. Revision Committee that the *modus operandi* for some of the galenicals be so simplified that the retail pharmacist will be able to prepare them himself, instead of buying them from the manufacturer.

The reason for my appeal is, that the Committee on Propaganda of the U. S. P. and N. F. preparations cannot conscientiously ask the medical profession to prescribe the official preparations in preference to proprietary or secret formulae, because many pharmacists do not prepare them but purchase them from other sources. Not much skill is required for preparing some galenicals, but the procedure for others is quite difficult and complicated. The results indicate that the pharmacist who lacks the laboratory facilities and has not the essential apparatus can not properly and accurately prepare many of the galenicals; in the absence of such equipment the public is, in my opinion, better protected when they are purchased from a reliable manufacturing house.

It has been stated by Dr. H. V. Arny that the U. S. P. IX is of use only to pharmacists who are trained to perform high-grade chemical and microscopical work. Unfortunately, many pharmacists are not in possession of a polariscope and other apparatus of this class. Many samples have, in the past, been collected and analyzed of which quite a large percentage did not come up to the standard, having been purchased from unreliable manufacturers.

The average retail pharmacist is not equipped for biologically assaying tincture of digitalis or preparing a fluidextract like that of Belladonna, but we can expect him to manufacture other galenicals of the U. S. P. and N. F., complying with the *standard*, if the methods for preparing them are simplified.

I fully agree with Dr. Lyman F. Kebler, who suggested that a careful canvass be made of the medical profession and of their prescriptions on file at drug stores to determine what preparations are generally used by them in their practice.

In examining my prescription files I found that a good many galenicals of the U. S. P., and especially of the N. F., are very infrequently called for. Some of them remain on the shelves for years and many deteriorate.

In the present U. S. P. there are about 340 galenicals and in the N. F., 580; many of them could be eliminated and a number of other preparations added. The following articles which are never prescribed could be deleted from the National Formulary:

1. *Collodions.*—Styptic collodion and Croton Oil Collodion are never used.

2. *Elixirs.*—Of the 78 N. F. elixirs, about ten percent could be deleted, because they are seldom, if ever, prescribed; for example: Elixir Cinchona Alkaloids, Iron and Calcium Lactophosphate; Compound Elixir of Corydalis; Compound Elixir of Formates, etc.

Elixir of Iron and Quinine Phosphates should be added.

3. *Plasters.*—Salicylated Soap Plaster (10%) should be added.

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* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., City of Washington meeting, 1920.

4. *Emulsions.*—Emulsion of Petrolatum should be deleted; a very important emulsion should be added, *viz.*, Emulsion of Creosote Carbonate.

5. *Fluidglycerates* are very seldom prescribed.

6. *Infusions and Decoctions.*—More should be included.

7. *Solutions.*—Antiseptic Solution of Pepsin should be deleted. Antiseptic Solution becomes cloudy on standing, the formula should be improved; the formula for Solution of Iron Albuminate should be simplified.

8. *Mixtures.*—Compound Mixture of Chloroform and Morphine, and Mixture of Oil of Tar should be deleted. Glycerin should be omitted in Compound Mixture of Rhubarb; physicians prefer to specify the formula of U. S. P. VIII.

9. *Oleates.*—Oleate of Cocaine is seldom prescribed and should be deleted.

10. *Petroxolins.*—Very few are prescribed; some of them should be eliminated.

11. *Spirits.*—Ethereal oil is not always obtainable and, therefore, compound spirit of ether should be deleted.

12. *Syrups.*—Syrup of the Bromides is a good preparation and frequently prescribed; formerly Compound Syrup of Asarum was often prescribed but not now; we have had some of the preparation in stock for five years.

Syrup of Morphine and Acacia and Compound Syrup of White Pine with Morphine should be deleted.

13. *Tinctures.*—Another menstruum should be designated for alcohol in Tincture of Larkspur; Decolorized Tincture of Iodine is not an iodine tincture, the formula should be changed or the preparation omitted from the N. F.

14. *Ointments.*—A simple ointment should displace the wax and lard of the present formula for Camphor Ointment. Ointment of Zinc Stearate is seldom prescribed and should be deleted.

15. *Wines.*—Compound Wine of Glycerophosphates is preferred by most physicians to the Elixir and should displace it. Wine of Wild Cherry is seldom prescribed and should be deleted.

16. *Tablets.*—A chapter on tablet triturates, compressed tablets and hypodermic tablets should be included in the U. S. P., giving full directions for making them.

17. *Ampoules.*—A description of ampoules should be included in one of the standards with methods for preparation and sterilization.

FLUIDEXTRACT OF IPECAC.*

BY FRANTZ F. BERG.

Each succeeding revision of the Pharmacopoeia has found a change in the process of manufacture of Fluidextract of Ipecac. Judging from personal experience and that of others, we have not as yet obtained a preparation of this drug which satisfies the two-fold property of being permanent and at the same time suitable for the preparation of a Syrup of Ipecac.

A review of the literature on this subject and the drug itself reveals the fact that it is a very old subject. Several strengths of alcohol, together with the addition of various acids, have been tried with varied success, none of which have yielded a preparation entirely satisfactory.

The problem, as before stated, is to prepare a fluidextract which will not precipitate on standing and yet be miscible with syrup.

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* Presented before Section on Practical Pharmacy and Dispensing, A. Ph. A., City of Washington meeting, 1920.

The first consideration in attempting to prepare a fluidextract from this drug, was the selection of a menstruum which will extract its active constituents. From the writer's experience and from the consensus of opinion among other investigators, and prevailing formulae in other pharmacopoeias, it was concluded that a menstruum containing approximately 70 percent alcohol was the most efficient.

In the U. S. P. VIII a menstruum of 75 percent alcohol was used, but the finished product was not miscible with syrup, at least not without the addition of an acid.

The U. S. P. IX changed the menstruum to about 37 percent alcohol, with an addition of 1 percent hydrochloric acid obviously for the purpose of rendering it miscible with syrup, and as an aid to extraction.

The objections to the present formula are, first: It is extremely difficult to exhaust Ipecac with the menstruum used, and second: the resinous matter which causes the clouding with syrup has not been removed, and as a result we have an unsightly syrup.

With these facts in mind a series of experiments were undertaken to determine if it were possible to produce a preparation possessing the desired qualities.

The following table shows the results of these experiments.

Exp.	Menstruum.	Use of heat.	Appearance or result.	Assay.
"A"	Alcohol 75%, Glycerin 10%	Yes	Percolate gelatinized	None
"B"	Alcohol 75%, Acetic Acid 1%	Yes	Precipitated	1.10 Gm. per 100 Cc.
"C"	Present U. S. P.	No	Precipitated	1.91 Gm. per 100 Cc.
"D"	Present U. S. P.	Yes	F. E. good but syrup unsightly	1.60 Gm. per 100 Cc.
"E"	Alcohol 71%, HCl 0.5%	Yes	Excellent	1.71 Gm. per 100 Cc.

Following is the process as used in carrying out Experiment "E."

1000 Gm. of drug in No. 60 powder moistened with 250 Cc. of warm (60° C.) 2 percent hydrochloric acid, placed in covered vessel over night, packed moderately in percolator, covered with menstruum:

Alcohol (U. S. P. 95%)	3 volumes
Water	1 volume

Allowed to macerate 48 hours; percolation allowed to proceed slowly until 800 Cc. of percolate were obtained. This percolate was reserved and percolation continued (using same menstruum as above) until drug was exhausted. The combined weak percolates were introduced into a distilling flask (fitted so that distillation might proceed under diminished pressure) heated on steam bath until bulk of liquid in flask was reduced to $^1/_5$ of original volume. (This operation was carried out without use of diminished pressure.) The reserve percolate was now added to contents of flask and distillation continued under reduced pressure until residue in flask had become viscid. Allowed to cool, then added alcohol 40 percent (made from recovered alcohol) a sufficient quantity to measure 1000 Cc. and filtered. (Resins separate and remain on filter.) Assay a portion of filtrate and adjust to U. S. P. strength.

CONCLUSIONS.

1. The exhaustion of the drug may be hastened by moistening with warm hydrochloric acid which causes a swelling or cracking of starch cells and woody fiber, and exposes a larger surface to action of the solvent.

2. That a 71 percent alcohol is best solvent for the active principles.

3. By use of a still the alcohol may be recovered and subsequently used with no great loss, and active principles are not injured by excessive heat.

4. By taking up residue in 40 percent alcohol a preparation is obtained which does not precipitate, and is miscible with syrup without the addition of acid.

A fluidextract prepared by this process has been observed during past month, and thus far shows no precipitation whatever, and produces a brilliantly clear syrup, and without the addition of acetic acid.

If this preparation with longer standing remains permanent, it is offered as a substitute for the present U. S. P. process for this fluidextract.

LABORATORIES OF
E. R. SQUIBB & SONS,
BROOKLYN, N. Y.

ALCOHOL: ITS RELATION TO SCIENCE AND INDUSTRY.

BY WILLIAM L. CROUNSE.

In this presence it would be a waste of words to undertake to emphasize the importance of alcohol in pharmacy. I feel, however, that in view of the extraordinary events of the past year and the conflict of counsels as to the policy the drug trade should pursue in protecting itself against the hazards incident to the enforcement of the unprecedented provisions of the Volstead Act, I am justified in appealing to you to do your bit in securing for alcohol the official recognition to which it is entitled as the most essential chemical raw material known to industrial science.

The man in the street is apt to consider distilled spirits solely as the means of producing a condition of more or less delightful exhilaration, with a dark brown taste the morning after. To the extreme prohibition enthusiast all forms of spirits are anathematized as the Demon Rum. But few persons outside the circle of those who actually employ alcohol in science and industry appreciate its indispensable character or realize that if its supply were cut off thousands of manufacturing plants would cease operations, hundreds of thousands of men and women would be thrown out of employment and the science of medicine relegated to the dark ages.

While, therefore, the law of the land, which we all cheerfully obey, requires that adequate safeguards shall be thrown around the use of alcohol to prevent its diversion to beverage purposes, yet we who realize its value to science and the industrial arts should not hesitate to demand that it shall be available for every legitimate purpose and on terms that represent a minimum of expense and hardship to the user.

USE OF DENATURED ALCOHOL.

No development in the utilization of alcohol is more significant of its great importance to industry than the enormous increase in the consumption of denatured spirits since the passage of the so-called free alcohol law of 1906. It was my pleasant task to assist the manufacturers of the country in the efforts to secure the passage of that statute and it has been a matter of great satisfaction to me to note the rapid development of the use of denatured spirits under its beneficent provisions. Beginning in 1907 with a total consumption of completely and specially denatured alcohol of 1,780,276 wine gallons, the total rose in 1914 to 10,404,975 gallons. In 1914 the World War began and the demand for alcohol, first, for the manufacture of smokeless powder and, second, for the production of our allies and for the United States of various gases, including the deadly mustard

gas, received an enormous impetus, consumption rising rapidly until in 1917 the peak was reached with a total of 55,679,597 wine gallons, of which 10,508,919 gallons were completely denatured and 45,170,678 gallons specially denatured.

The following table shows the production of alcohol both completely and specially denatured by fiscal years, since the passage of the free alcohol law of 1906:

Fiscal years.	Completely denatured. Wine gallons.	Specially denatured. Wine gallons.	Total. Wine gallons.
1907	1,397,861.16	382,415.19	1,780,276.35
1908	1,812,122.38	1,509,329.35	3,321,451.73
1909	2,370,839.70	2,185,579.15	4,556,418.85
1910	3,076,924.55	3,002,102.55	6,079,027.10
1911	3,374,019.92	3,507,109.94	6,881,129.86
1912	4,161,268.56	3,933,246.44	8,094,515.00
1913	5,223,240.78	4,608,417.76	9,831,658.54
1914	5,213,129.56	5,191,846.03	10,404,975.59
1915	5,386,646.96	8,599,821.81	13,946,468.77
1916	7,871,952.82	38,807,153.56	46,679,106.38
1917	10,508,919.34	45,170.678.29	55,679,597.63
1918	10,328,454.61	39,834,561.48	50,163,016.09

Notwithstanding the rapid increase in the consumption of denatured alcohol in this country, at the time of the beginning of the great war Germany was producing ten gallons to our one, a fact which has had an important bearing upon German supremacy in the vast field of industrial chemistry.

The part borne by alcohol in the war is worthy of much more space than the limits of this brief paper afford. It is interesting, however, to recall the fact that when the great German offensive was on in 1918 and the British and French armies stood "with their backs against the wall," General Pershing sent an order to the United States for 1,000 tons of mustard gas per day, to be delivered forthwith. To produce a ton of mustard gas requires a ton of alcohol; hence to arrange for the filling of this enormous order, the War Industries Board was obliged to mobilize the entire distilling industry of the United States and turn it for the time being from all other classes of production to the making of alcohol. But for the intervention of the armistice it is probable that the distillers of the United States for many months would have been able to furnish nothing but the raw material for the deadly gas that was so signally aiding the Allies in the winning of the war.

You are all familiar with completely denatured alcohol, which since 1906 has been permitted to be freely sold and used for a variety of industrial and domestic purposes. Few of you, however, have been brought into close contact with specially denatured alcohol which, after distillation, is modified by the use of a large number of different chemical agents for consumption in an enormous variety of industries. A single formula of the thirty-five now in use has been approved for employment in the manufacture of nearly two hundred articles ranging from smokeless powder to artificial flowers, and from transparent soaps to the ink used in the interstate branding of meats.

ALCOHOL IN MEDICINE.

It is not surprising that the average layman should be at a loss to know where to turn for reliable information concerning the function of alcohol in medicine.

This uncertainty is largely due to wholesale misrepresentation, in part deliberate and in part due to ignorance, by overzealous partisans of the cause of prohibition. It has been one of my most exasperating experiences during the past two or three years to listen to statements made before important committees of Congress by certain of these zealots to the effect that, if the supply of alcohol should be immediately cut off, medical science would in no way be embarrassed, the preparation and administration of drugs would in no respect be restricted or inconvenienced, while the science of therapeutics would actually be benefited thereby.

It is usual for these enthusiasts, none of whom claim any knowledge of medicine, pharmacy, or chemistry, to take as a text a statement of some physician or a resolution adopted by some medical society to the effect that the position of alcohol as a therapeutic agent is more or less doubtful, and urging that physicians use a greater degree of restraint in prescribing alcoholic stimulants.

Upon these premises—which, of course, are debatable ground—is based an argument that alcohol is no longer necessary in medicine, and I have heard some of the more extreme advocates of this theory declare that no exemptions should be provided in the Federal Prohibition Act for standard drugs, proprietaries, toilet articles or flavoring extracts.

Of course, what the physicians who are quoted in this connection have said —and there is a wide divergence of expert opinion on the subject—has been confined exclusively to the use of spirits for their direct therapeutic or stimulating effect, and has had no bearing whatever upon the employment of alcohol as an extractive agent, solvent or preservative.

I think it is only fair to say that in the majority of cases these zealous gentlemen have been entirely ignorant of the technical reasons for the employment of alcohol in the manufacture of medicines, and have been honest in their belief that such spirits as are used in the average alcoholic medicinal preparation are deliberately introduced for the purpose of stimulating the patient, the physiological effect of the spirits being counted upon by the manufacturer or prescriber in exactly the same way that the other ingredients are relied upon to produce certain results.

Conceding, however, that these gross misrepresentations have been made in good faith, what shall be said of the arguments predicated upon such ignorance or of law-makers or administrators who permit themselves to be swayed by such influences?

While the efforts which pharmacists and chemists in many lines of industry have been making in recent years to discover satisfactory substitutes for alcohol, especially for purposes of solution and preservation, are in line with the broad basic principles underlying the progress of science, nevertheless they should not mislead us into assuming a timid or equivocal attitude with respect to alcohol, or deter us from defending our right to use it whenever and wherever the rules of pharmacy and chemistry require. The mere fact that there are abuses in the use of alcohol, which nature, for some inscrutable reason, has made intoxicating, should no more deter the reputable manufacturer or physician from employing it in the preparation of drugs than occasional murders or suicides by the use of poisons should operate to eliminate all poisonous drugs from the Pharmacopoeia.

There are some sound reasons why scientific research should be directed toward the discovery of substitutes for alcohol. High cost is one of them. This

consideration alone is steadily operating to reduce the amount of spirits employed in every preparation in which it is feasible to make any reduction whatever. Never before in the history of the drug trade has it been so difficult to obtain a supply of alcohol, and the mounting price and difficulty of procurement have constituted incentives that would have stimulated experimentation in a much greater degree if the prospect for the discovery of satisfactory substitutes had been more encouraging.

Every retail druggist will welcome the effort made by the Pharmacopoeial Committee to reduce the alcoholic content of official preparations. Any substantial reduction attained will tend to curtail the cost of production and to render official preparations less liable to be diverted by degenerates to beverage purposes, but the standards finally fixed by the United States Pharmacopoeia and National Formulary should be promptly accepted as irreducible minima, and pharmacists the country over should unite in demanding the right not only to employ alcohol in accordance with these standards, but also to obtain an adequate supply with the least possible difficulty and expense.

HOUSE-CLEANING OF DRUG TRADE.

The retail drug trade may well congratulate itself upon the splendid job of house-cleaning it has done in casting out fake alcoholic proprietary medicines, in putting out of business whiskey sellers thinly disguised as druggists, and, more recently, in confining the sale of wines and liquors to strictly legitimate purposes. In this movement the retailers are now enjoying the hearty coöperation of the drug jobbers who appreciate that if the trade is to be kept clean-handed the wholesalers must support the highest standard adopted by the retailers and refuse to sell alcoholic preparations to anyone under circumstances which would justify the suspicion that they are to be diverted to beverage purposes.

In liberalizing the original House draft of the Volstead Act for the purpose of providing adequate exemptions for the drug and allied trades, the proviso that exempted articles must be "nonpotable and incapable of being used for beverage purposes," was stricken out, and the phrase "unfit for beverage purposes" was substituted. In view of this concession, the Congressional leaders, at the instance of the representatives of the drug trade, inserted as a corollary an additional provision, in part as follows:

> "Any person who shall knowingly sell any of the articles mentioned in paragraphs *a*, *b*, *c* and *d* of this section for beverage purposes, or any extract or syrup for intoxicating beverage purposes, or who shall sell any of the same under circumstances from which the seller might reasonably deduce the intention of the purchaser to use them for such purposes, or shall sell any beverage containing one-half of one per centum or more of alcohol by volume in which any extract, syrup or other article is used as an ingredient, shall be subject to the penalties provided in section 29 of this Title."

While this provision makes it incumbent upon every house in the trade, whether manufacturer, jobber or retailer, to use the utmost care to prevent the diversion of alcoholic preparations to beverage uses, in my opinion it imposes a special obligation upon the jobber, for it is in his power to control the distribution of alcoholic medicinal preparations, toilet articles, etc., to a marked degree. As illustrating my own view of the jobbers' duty in the premises—a view which I am confident has been quite generally accepted throughout the wholesale drug trade—I will quote the following extract from an address which I made before the

National Wholesale Druggists' Association at its convention held in New Orleans last November:

"Under the provisions of the Volstead Act it becomes the duty of every manufacturer or distributor of an alcoholic preparation which might be diverted to beverage purposes to carefully scan every order for such goods he may receive and to refuse to sell such articles in quantities in excess of what he believes to be the reasonable requirements of the purchaser for strictly legitimate purposes. It is, of course, impossible to lay down any hard-and-fast rule with respect to the quantities of various articles which may properly be sold. No two purchasers necessarily have exactly the same requirements, but it is believed that every jobber is in position to know if an order for any of the articles in question is in excess of the actual needs of the buyer for legitimate purposes. In no case should an order be filled for the maximum quantity called for if the jobber is in doubt as to the purpose for which the goods will be used.

"For their own protection, members of the National Wholesale Druggists' Association should make and preserve such records as will clearly show their intention to observe the spirit as well as the letter of the law, and their daily practice pursuant thereto. No intricate system need be adopted, but it is suggested that such records should be kept as will enable jobbers to compare incoming orders for the alcoholic preparations in question with those previously received from the same customers to determine whether by increasing quantities, or purchasing more frequently, such customers are accumulating unnecessarily large stocks. A record should certainly be made of all orders the quantities of which jobbers find it necessary to reduce, as such data constitute the best possible evidence of an intention to coöperate with the Government in the strict enforcement of the law. It will also be well to preserve in the same file, copies of correspondence relating to reductions of orders, together with copies of all circulars or other memoranda that may be sent out to the trade; also copies of instructions to salesmen, office employees, etc., etc.

"It should be borne in mind that the fact that an article is made in accordance with the United State Pharmacopoeia or the National Formluary does not take it out of the category of alcoholic preparations which may be improperly diverted to beverage purposes. Nor does the high alcoholic content of a preparation necessarily include it within the suspected category, for it is conceivable that a preparation might be nearly all alcohol and yet contain a small quantity of a drug so powerful as to render it impossible to drink it. The test is whether the goods are likely to be used as substitutes for intoxicating beverages; if so, everything possible should be done to prevent their sale in quantities exceeding the demand for the legitimate purposes for which they are intended."

REGULATIONS UNDER VOLSTEAD ACT.

The entire drug trade, and in fact all users of alcohol who are thereby subject to official supervision, are to be heartily congratulated upon the present personnel of the Prohibition Unit of the Internal Revenue Bureau. Mr. Kramer, the Prohibition Commissioner, is discharging his duties with an intelligence, an impartiality and a resourcefulness that have already inspired the confidence of every one who has had dealings with him. In Deputy Commissioner Gaylord, we have one of the most experienced, far-sighted and progressive men in the entire Government service. Mr. Gaylord is an expert not only in Internal Revenue law and regulations and in the administration of statutes requiring tact as well as skill, but he is probably the best-informed man in the Internal Revenue Bureau with regard to the industrial position of alcohol. His technical knowledge and his keen appreciation of the necessity for administering the Prohibition Law in such a way as to minimize the restrictions and annoyances imposed upon manufacturers who are obliged to use alcohol, render him not only an exceedingly useful aid to Commissioner Kramer, but an official who can be counted upon at all times to give the fullest possible consideration to legitimate interests while executing this difficult statute in accordance with its spirit as well as its letter.

That there is much room for improvement in the present code of regulations

the officials of the Prohibition Unit will be the first to concede. The present code of rules was framed to cover uncharted ground. There were no precedents for supervision of the character and extent required by the Volstead Act, and much that has been done will doubtless be undone; nevertheless, the regulations as a whole have thus far disclosed as few faults as have been developed in the case of any similar code which the Government has heretofore adopted under any other statute, and it has already been demonstrated that the officials feel no pride of authorship, but stand ready to modify any regulation when it can be shown that it can be improved in any important respect without sacrificing the validity of the statute.

The present method of obtaining alcohol upon permits known as Form 1410 leaves much to be desired. It is clumsy and costly and its use frequently involves indefinite delay. It does not adequately protect the Government, but discriminates in favor of unprincipled persons seeking to exploit the statute and against the honest, conscientious manufacturer or dealer.

I recently had the honor to be chairman of a committee representing the drug and allied trades, which after extended conferences with representatives of all branches of our industries, recommended to the Bureau the abandonment of Form 1410 as applied to all purchases of original stamped packages of alcohol, and the substitution therefore of a "floating" permit similar to that used successfully for many years in the procurement of specially denatured alcohol. Such a permit would bear upon its face a statement of the maximum quantity of alcohol which the holder would be allowed to purchase during a ninety-day period under his outstanding bond and could be lodged with any distiller and drawn against from time to time, by mail, telegraph or telephone, until the limit of the bond should be exhausted. The distiller or dealer making shipment on this floating permit would enter the amount thereon and at once mail a notice of the shipment to the Prohibition Director of the district and to the Prohibition Commissioner in Washington.

Under existing conditions, and especially because of the scarcity of alcohol, it is difficult to procure spirits promptly and in the great majority of cases orders on Form 1410 have to be returned to the holder of the permit for the purpose of reducing the quantity ordered. Thus vexatious delays occur and holders of permits to use alcohol for manufacturing purposes frequently find themselves without any of this very necessary material at hand. The existing requirement that all the copies of Form 1410, of which a large number are required each month, shall be sworn to, is, of course, a wholly unnecessary expense, for if a manufacturer holds a permit no further evidence of his right to use alcohol should be required.

The importance of the reform that would be effected by the substitution of a single floating permit for the numerous copies of Form 1410, is suggested by the fact that at the time of the recent conference of our trade committee with the officials of the Prohibition Unit, One Prohibition Director was being called upon daily to sign 12,000 individual permits to purchase. Relieved of this purely clerical work, the entire supervisory service could be devoted to the investigation of applications for permits, a task of crying necessity in view of the large number of permits perfunctorily issued during the days immediately following the taking effect of the Volstead Act. Many unscrupulous persons, seeking to reap a harvest in a short time through the diversion of alcohol and other intoxicating liquors to

beverage purposes, procured permits which they could not have obtained upon full investigation, manufactured quantities of fake medicine or toilet articles or spurious liquors, and after marketing them at enormous profits decamped for parts unknown, leaving nothing behind them but a smirch upon the good name of legitimate industries and an acute heart-ache in the Prohibition Unit. I am glad to say that these cases are being most carefully investigated and large numbers of permits will undoubtedly be cancelled.

There are many incongruities in the law and regulations that I am confident will be corrected in a short time. For example, what would be more ridiculous than a rule which permits the house physician of a hotel to prescribe a pint of whiskey for a transient guest staying perhaps but a night in a place, but which renders the guest a criminal, liable to serve a term in the penitentiary, if he attempts to take the whiskey with him when leaving the hotel, thus making it necessary for him to consume the entire pint at a sitting to keep out of jail. I am glad to be able to say that the Bureau is now considering the feasibility of authorizing a special label to be attached to containers of spirits regularly prescribed by physicians, showing the name and permanent address of the patient, the name and address of the physician and of the druggist from whom the spirits were purchased and any additional data that may be deemed advisable. Of course, it hardly need be said that it would be next to impossible to convict of a crime a person who, having regularly received a pint of spirits upon a physician's prescription, should be detected in the attempt to convey same from the hotel where he chanced to be stopping to his permanent home; nevertheless, it is important that such a matter should be provided for by regulation and not left to the variable judgments of special agents, district attorneys and courts in a hundred different jurisdictions.

Retail druggists of late have been rendered apprehensive by persistent reports, current for some time, that the Prohibition Commissioner is preparing to issue an order limiting to 100 gallons the amount of alcohol in all forms they will be permitted to procure in any 90-day period. These reports are erroneous though they have a basis in the fact that the Commissioner has been giving considerable attention to the problem of the practicability of determining the maximum quantity of spirits which a retailer can legitimately use in the course of three months.

Up to the time this was written, no hard-and-fast rule had been adopted and there appear to be sound reasons why it is impracticable, if not impossible, to fix a limit that would not work great hardship if it were made at all restrictive. For example, an amount of alcohol which would be ample for a small druggist with a limited prescription business who is in the habit of purchasing rather than making the bulk of his alcoholic preparations, would be wholly inadequate to meet the needs of another druggist with an equal volume of business who stood well with the doctors, because of his careful methods and who, like the old school pharmacist, makes his own tinctures, two or three successful little proprietaries of his own and other articles which are now commonly purchased of the wholesaler.

I feel confident that the Prohibition Commissioner will take a reasonable view of this whole matter and that if any limit, other than the size of the druggist's bond, is adopted, it will be sufficiently elastic to avoid all hardship.

Manufacturers, jobbers and retailers, alike, have been put to a great deal of trouble and considerable expense by the Bureau's ruling requiring monthly reports concerning all alcohol consumed. In view of the fact that the only parties allowed to employ nonbeverage alcohol for manufacturing purposes or for sale are presumed to have been carefully investigated by the Bureau, and of the further fact that unscrupulous persons would have no difficulty in falsifying these reports in such a manner as to escape detection, it is natural that the casual observer should jump to the conclusion that the time and the money they cost the trade are out of all proportion to their practical value to the Bureau.

I think we should suspend judgment on this matter, for a while at least, and give the report system a fair trial. It is possible that it may prove of sufficient value to the Bureau to justify its permanent retention. If so, it may be practicable to simplify the reports somewhat and perhaps to require them to be rendered quarterly instead of monthly, which, in many cases, would substantially reduce the labor of the permit holder.

I know that our friends in the Internal Revenue Bureau would give even greater consideration to the question of demanding additional reports or of requiring additional records to be kept if they could see the cold figures representing their cost to the business men of the country. I have in my possession letters from three large manufacturing and jobbing houses in the drug trade in which the extra cost of the narcotic and alcohol regulations is put down in one case as exceeding $10,000 per annum, and in another as more than $12,000, while in the third case it is estimated that the cost exceeds 10 percent of the value of the entire output of all classes of commodities. While the extra cost to the average retailer is not very much as measured in dollars and cents yet, multiplied by the many thousand dealers now doing business in the United States the aggregate must run far into the millions.

In this connection I would bespeak your patient consideration for any personal eccentricities that may be developed by Mr. Kramer's staff of Prohibition Directors. You who are accustomed to deal with the veteran experts of the Internal Revenue Service may frequently be tempted to become a bit testy over the super-zeal or lack of knowledge on the part of some of these new officials. I am confident, however, that none of you have had as comprehensive an experience in dealing with these gentlemen as has fallen to my lot since the 16th of January, and I take pleasure in testifying to their general intelligence, their impartiality and their uniformly good intentions. Mr. Kramer is following their movements with a keen eye and will not hesitate to put them on the right track whenever they go wrong. I am certain, however, that within a reasonable length of time you will find them discharging their duties with tact and discretion, as well as with properly directed zeal. There will necessarily be a few exceptions to this rule, but whenever you encounter one you have only to remember that Mr. Kramer's permanent address, 365 days in the year, is 1330 F St., Washington, D. C.

PHARMACISTS' ATTITUDE TOWARD ALCOHOL.

Action taken during the past year by organized retailers and many informal statements made by individual druggists indicate that the retail drug trade is now divided into three separate camps with respect to a definite attitude toward the question of selling or handling any form of intoxicating liquors.

The members of one contingent have decided that it is the function of the retail drug trade to provide anything that a reputable physician may order on prescription, and, therefore, they do not hesitate to carry and sell whiskey and other intoxicating liquors to be dispensed solely on prescriptions. They also carry nonbeverage alcohol which they use for prescriptions and general manufacturing purposes and sell in medicated form in small quantities in accordance with the regulations.

The second class, while handling and selling nonbeverage alcohol, have decided that they will not dispense whiskey or other intoxicating liquors even on the prescription of a physician. They sincerely believe that doctors as a class are in the habit of prescribing too much whiskey and other intoxicating liquors, and would use less if it were more difficult to obtain.

The third class have determined to handle and to sell neither whiskey nor other intoxicating liquors, including even nonbeverage alcohol, for any purpose whatever. According to certain members of this class they not only desire to be rid of the inconvenience incident to the supervision of dealers in intoxicating liquors, but they believe that refusal to sell them, even on a prescription of a physician, or to handle alcohol in any form, for any purpose, will be approved by the general public and especially by the officials of the Government charged with the supervision of this traffic; also that the refusal to handle intoxicants of any kind will aid materially in advancing the ethical position of the retail drug trade and go far toward correcting false impressions that have found lodgment in the public mind as the result of the acts of a few unscrupulous members of the trade.

Without attempting an analysis of the attitude of these three sections of the trade, it may be well to call attention to certain important considerations. It is an incontrovertible fact that a large and eminently respectable contingent of practicing physicians believe that intoxicating liquors are of decided value in the treatment of certain diseases and physiological conditions. Their right to prescribe them is specifically conceded by the provisions of the Volstead Act, which thereby imposes upon the Internal Revenue Bureau the exceedingly difficult task of policing their production, distribution and administration.

It would be an ideal condition, in view of the fact that more or less intoxicating liquor is certain to be sold on physicians' prescriptions pursuant to the Volstead Act, if some quasi-official dispensing system could be adopted, possibly under the supervision of the Public Health Service, but the Government appears to be taking no steps looking to the organization of any such system and it seems to me that the retail drug trade might well take this matter up vigorously and pursue it with the greatest possible energy until some adequate system has been devised. Physicians are contending with considerable emphasis that the retail druggists owe it to the medical profession, to which they are the recognized purveyors, and to the public which they must be ever ready to serve, that they shall do more than merely determine that they will not sell intoxicating liquors on physicians' prescriptions; they should use the great influence, which collectively they wield, to aid in working out a solution of this problem in a thoroughly practicable manner.

Under existing conditions, and in default of a semi-official dispensing system, an anomalous situation prevails. The Internal Revenue Bureau, so far from being benefited by the acts of retail druggists who refuse to handle intoxicating liquors for the filling of prescriptions, is likely to find itself somewhat embarrassed. It is greatly to the advantage of the Government that, inasmuch as intoxicants may lawfully be sold for medicinal purposes and, therefore, will be sold, they should be handled by the most reputable merchants in the country and that the traffic should not be turned over to persons of doubtful character. But does not every honest, highminded retailer who, in any community, refuses to fill prescriptions

for intoxicants, assist in concentrating the business in the hands of a smaller number, some of whom may be less conscientious, and thus add to the difficulties experienced by the Internal Revenue Bureau in preventing abuses?

Furthermore, even assuming that there are none but honest and reputable druggists in a given community, and that, because there is no central dispensing system, a few of them conscientiously determine it to be their duty to shoulder this burden, is it not apparent that if the filling of all the local physicians' prescriptions for stimulants devolves upon a fraction of the number of the local druggists, their business will soon assume a character that will bring them under undeserved suspicion?

I regret that I cannot sympathize at all with those retail druggists who have refused to take out permits to handle or use nonbeverage alcohol as distinguished from whiskey and other beverage forms of spirits. I cannot see how a modern pharmacy can be conducted without the use of alcohol. Of course, a retail druggist may become a peddler of toilet articles, tobacco, stationery, confectionery and soda water, but it seems to me that he must put his professional pride in his pocket and voluntarily scrap a large part of his education as a pharmacist when he decides that he will not use alcohol in any form. Pussyfooting should be beneath the dignity of men boasting a scientific training.

To my mind, the retail drug trade in this connection presents a clear case of *noblesse oblige*. Because of the high standing of the educated pharmacist, individually and collectively, it is his duty to assume, in addition to the ordinary burdens of citizenship, the extra load which his intellectual equipment and his special knowledge fit him to carry. He cannot conscientiously sidestep it nor impose it upon another.

If, therefore, you will shoulder your burdens like men and, like men, discharge your obligations to your trade and your country, you will earn the right, whenever your acts are called in question or whenever you find yourselves facing a difficult situation, to come to Washington and, in the tones in which real men speak, demand a square deal at the hands not only of the executive departments but, if necessary, of that august body the Congress of the United States itself.

THE FUTURE OF THE WAR VETERANS' COMMITTEE.*

BY CLYDE L. EDDY.

The War Veterans' Committee of the American Pharmaceutical Association may well become one of the most important and influential forces in American Pharmacy.

Its members are veterans of a war whose lessons were too well learned ever to be forgotten. They know the steps by which, against its will, this country became involved in the controversy, and, too, they know that conditions might easily arise which would compel us again to take up the sword in defense of our rights as a nation. They know the disadvantages under which pharmacists were compelled to serve in the Army and they know something of the inefficiency which existed for a time in some branches of the service because of a failure to utilize pharmaceutical resources to the best advantage.

* Read before House of Delegates A. Ph. A., City of Washington meeting, 1920.

There are those who will take exception to my statement that there will be wars in the future into which we may be drawn. But those same persons are among those who could not see, even as late as 1916, that there was imminent danger of being drawn into this one. Almost before the guns were cold along the Western front in 1918, the nations of Europe began to make their plans for another war which they consider now to be inevitable and we are not so far removed from Europe that we can afford to ignore what is done by the people living there.

While in France I asked many of the French soldiers and French civilians and German prisoners if they thought there could ever be another war in Europe, and the replies, almost uniformly, were in the affirmative. "Ten years, perhaps," they would answer me, "or fifteen—perhaps fifty—but some time, yes." Those people were not statesmen or generals, but they represented the millions whose wishes ultimately must dictate the actions of their governments and what they said—with the guns of the latest war still ringing in their ears—was said, on the one hand with a tightening of lips and a gleam of implacable hatred in their eyes and, on the other, in a spirit of quiet resignation.

Many times during the war it was said that there never could be another such holocaust—that modern science had rendered such struggles so deadly that the people would [illegible] another—and yet, travelers who have penetrated the country assure us that Germany, smarting under the most humiliating defeat in the history of the world, is already plotting for revenge. A German reactionary was credited in *The New York Times* of April 18, 1920, with the statement that "We do not hope, we cannot expect, that France will ever go Bolshevist; her small proprietors will save her from that. But there may be trouble—serious trouble—big strikes and transport tie-ups, and maybe outbreaks of anti-militarism and perhaps mutinies. France's allies will leave her—they are doing so already. Why you Americans and English are actually on our side in this dispute. France will grow weaker and we will grow stronger. You cannot keep Germany down. Then one fine day there will be another story. I tell you that within five years a German army will enter Paris." Does that sound as if there can never be another war?

Walter Duranty recently sent the following dispatch from Paris: "The German military party is planning revenge. Not only that—the militarists have already succeeded, despite allied control, in rebuilding their machine for the establishment of a powerful army, whose true strength is concealed by clever camouflage. In other words, the defeated Germany of 1918 is planning to repeat against victorious France the famous coup of Scharnhorst and Stein in the years after Jena against Napoleon. That is the inevitable conclusion of what I have seen and heard in a recent visit to Frankfort in occupied Germany, and to both the Red and White sectors of the Ruhr Valley."

Mr. Duranty submitted the following facts to prove the truth of his statements and the soundness of his conclusions:

1. The German military party, headed by Ludendorf and a camarilla of generals and aided by the *Deutsch Offizier Bund* of Berlin and a thousand similar organizations throughout the country, is striving by might and main for revenge.

2. They have already reorganized a military machine and created a powerful army on a new basis.

3. They have succeeded in part in restoring the morale of the old army.

4. They induced Noske, either wittingly or unwittingly, to coöperate in their work and to assist them in concealing it from the allies.

5. Since Noske's resignation they are practically masters of the German government.

6. They are taking the utmost pains to hide the real extent of their efforts and their aims from the allied control commission.

7. They are using the danger of an attempt by the extremists to institute a proletariat dictatorship, a danger which is real enough, as an excuse to account for and a screen to cover their own preparations.

and so forth.

Later, the same paper called attention, editorially, to the fact that

"All the elaborate fiction of liberalism with which the German Government has sought to convince the world outside of Germany—and France—has been shattered into bits by that Government's own confession that 'the army would not accept an order for its dissolution.' In other words, the army is the Government, and the Socialist-Democratic-Center officials who hold the offices are merely a set of dummies whom the army finds convenient for dealing with foreign governments. That some of these dummies do not know that they are dummies, and that most of them would prefer not to be dummies, is beside the point. They can exercise the functions of government in Germany only so far as they do not interfere with the army; when that time comes, the 'liberal' government under Ebert is either unable or unwilling to go further."

It is not necessary for me to call your attention to other evidences of Germany's lack of good faith and to her expressed intention to revenge herself upon France and, later, the other allies. Nor is it my intention to point to Germany as the only potential disturber of the peace of the world. The evidence is before us, however (the same kind of evidence at which France and England and, especially, America scoffed prior to 1914) and we who saw this latest war at first hand have a solemn duty to perform in urging upon our associates the danger of another such struggle and the desirability—the necessity—of being prepared for it when it comes.

Also, there is danger from within. We have watched the spread of bolshevism in Russia and have said to ourselves in a reassuring manner that such a movement cannot possibly make itself felt in this enlightened country and yet—it *is* making itself felt and there is abundant evidence to prove that there is a widespread and well organized movement on foot to undermine the very foundations of our government. We are riding on the crest of a wave of prosperity such as the world has never seen before and the tenets of bolshevism thrive but poorly when stomachs are full and pay rolls are fat. But, do we know what lies in wait for us in the trough of the wave on which we are riding?

Albert J. Beveridge said recently at Atlantic City that there would be ten or fifteen million idle persons in the United States two years from now. "We are coming upon a period of unemployment that will be terrible," he said. "I speak not only from my own knowledge but upon the testimony of the leading experts of the land when I say that in less than two years there will be from ten to fifteen millions of people in this country out of employment." Perhaps there is a political motive in Mr. Beveridge's statement, but there may be much of accurate prophecy in it as well, and what will be the proportions of this bolshevist movement in the hard times that he says are coming if it is so important a factor in our national life to-day when jobs are plentiful?

I know how little we are interested in these things as we go about our daily

tasks. To many of us Europe is only a name and we are interested but little in the news that comes from there. We brand as "calamity howlers" those who tell us that there is danger of our being disturbed in our comfortable modes of living and pay little heed to what they say. I was trout fishing on the Feather River, in California, when the German troops invaded Belgium in 1914 and I remember how impersonal was my interest at first in that hideous maelstrom of war which engulfed all of Europe before the end of the year and sucked down to death 70,000 of my own buddies over there before it was ended. That is the trouble—we care too little—we go about our businesses all unconcerned until the blow is struck and then, all in a moment—without training—without preparation—we are compelled to defend our homes and our sacred institutions with our very lives.

No other members of the profession had the opportunity that we, who served in the Army or Navy during the war, had to see conditions as they existed in the service and no one is better equipped than we to point out to the profession why its resources were not made better use of and to show it what should be done so that there never will be a repetition of the unpleasant experiences of 1917 and 1918.

We know that there were instances where men who know absolutely nothing about pharmacy were entrusted with pharmaceutical duties while trained pharmacists were compelled to drive motor trucks, construct barracks and carry mail. We know that many pharmacists went into branches of the service where their pharmaceutical training was of absolutely no use to them—or to the Army—because they were told that their services—as pharmacists—were not available. We know that hospital duties were entrusted to inexperienced men detailed from the ranks and that those duties could better have been performed by men trained in pharmacy. There are times when the best that an untrained man can do is not good enough—good intentions, alone, do not save life or ameliorate pain.

We know that hundreds of physicians were kept busy doing work which pharmacists could have done as well, thereby relieving those physicians for more important work in the hospitals or at dressing stations. Those of us who were in France saw the civil population of the country almost bereft of physicians because of a too profligate expenditure of this important resource during the early years of the war.

It is not my intention to infer that the Medical Department alone failed in some instances to utilize its available men and materials to the best advantage because I know that other branches of the service fumbled as well in their efforts to meet an unprecedented emergency without adequate preparation for it, but I do maintain that conditions could have been improved and that pharmaceutical aid could and should have been utilized to better advantage.

The War Veterans' Committee should constitute itself a sort of "preparedness" section of American Pharmacy. Its chairman should prepare, each year, a comprehensive report showing the status of pharmacy *as a military resource*. He should get in touch with the Surgeon-General of the Army and of the Navy and ascertain their wants. He should learn from them what sort of training best fits a man for military service in their departments and then make an effort to have the colleges include that sort of training in their curricula. He should

familiarize himself with the work of the Navy Hospital Corps and the Army Medical Administrative Corps and endeavor to bring about some degree of coordination between those branches of the service and the pharmacy colleges.

He should learn exactly to which schools the War Department might turn if it has sudden and urgent need for bacteriologists, explosive chemists, chemists for chemical warfare service, manufacturing chemists and other men with similar specialized training. The schools should be urged to give adequate courses in first aid and other subjects which might fit their students for service in the Army. The idea of preparedness for war should never again be lost sight of in our colleges.

It would be no great task each year to compile a list of pharmacists and pharmaceutical chemists *outside of the schools* whose services might be of particular value in time of war and, also, the report could include a description of the commercial and manufacturing resources which the profession might turn to useful account in case of need.

This report—and it could be made to include many things not mentioned here—should be presented each year to the association and to the Surgeons-General of the Army and Navy. It would include information which they, perhaps, could not get in any other way, and such a series of reports, reaching these officers every twelve months, could not fail to impress them favorably. No doubt the reports would be filed away each year and, perhaps, forgotten, but the *effect* would be there—their influence would remain to impress the officers with the fact that American Pharmacy has possibilities they knew nothing of and that the training given to pharmacy students is more thorough than they realized. And, finally, there will come the year when the report will not be filed away and forgotten but, instead, will be used as the basis for the mobilization of the profession and, even if that time does not come for forty years, the work of the intervening decades will not have been in vain.

A NEW BUSINESS CONSCIENCE.

The philosophically inclined were wont to discuss, while the great conflict was going on, the probability of a new business conscience among the other new things which were to be a product of war's crucible. Seemingly, the thought was that dealings between man and man were to be on a higher plane. It was a worthy thought and it has not been forgotten. But unfortunately it seems to have lost the emphasis which the times should place upon it. No matter how fair-minded business men are, nor how zealously they hew to the line, the ideal must ever remain afar off. It is true that in this sphere of endeavor, as in all moral departments of life, that which is most worth while is most difficult to attain. In view of some of the unsavory revelations which have grown out of inquiries into profiteering, it were well for the vast mass of honorable business men—the dishonorable ones are infinitesimal in number—to hitch their wagons to the stars, even at the cost of superhuman effort, that the world of trade might wipe out quickly the stigma which the few have placed upon it.

Taking them all in all, the business men of the nation represent one of its greatest moral forces for good. They need not bow their heads in shame. They have stood up under the most trying conditions and fought their way to high ground over obstacles that sometimes seemed insurmountable. The spirit which has actuated them should become increasingly strong. By their continued example they will compel emulation among those inclined to shady methods, or failing in this they will make the trickster so uncomfortable that he must pack up and quit.—*Editorial, "New York Commercial," June 15, 1920.*

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

DENVER.

The Denver Branch, A. Ph. A., held its regular monthly meeting Tuesday evening, April 20, 1920, at the Metropole Hotel. An excellent dinner was served at 6.30. President Geo. Gregory presided and seventy-five members were present.

Before the meeting, Mr. Greshen, one of the Committee on the Presbyterian Hospital Association, made a talk and a plea for subscriptions to this very worthy cause. In response to Mr. Greshen's plea $575.00 was subscribed, which amount added to that already subscribed by various druggists throughout the city made a very commendable showing for the Retail Drug Trade in general. Following Mr. Greshen's talk the Minutes of the March Meeting were read.

Mr. Samuel T. Hensel made a motion that an amendment be made to the Minutes of the March Meeting wherein the action taken by the Executive Committee on H. R. Bill No. 8078 be shown, also a copy of the letter sent to each of the Senators and Representatives be added. This action was seconded and carried and the Secretary instructed to make the proper amendment.

AMENDMENT TO MINUTES OF MEETING HELD MARCH 16, 1920.

It was moved at the April Meeting of the Denver Branch, A. Ph. A., by Mr. Samuel T. Hensel, that the Minutes of the March Meeting be amended as follows:

To include action taken by the Executive Committee of the Denver Branch regarding H. R. Bill, No. 8078, introduced in the sixty-sixth (66th) Congress, to regulate the importation, manufacture, etc., of Coal-Tar Products.

The Executive Committee approved this, or some similar Bill, and the Secretary was requested to write the two Colorado Senators and four Representatives relative to the action taken in said Bill.

A letter was written and a copy of same is attached.

Following the reading of the Minutes, thirty-five new applications were read, voted upon and all elected to membership of the Denver Branch.

Charles J. Clayton next made a few remarks regarding the report of alcohol. This report must give the quantity used and the purpose for which it is used during each month, and report must be turned in to the Government on or before the 5th of each succeeding month.

The President took up the question of prices on drugs, drug merchandise, etc., and Mr. Chedister, of the Price Committee, was called upon for a report. Mr. Chedister gave a very clear explanation of the method of prices and explained the book which would be gotten out containing the various price lists. Much discussion was entered into regarding prices, and results which were satisfactory to all concerned were eventually reached. The prices of soda fountain beverages were afterward discussed by E. J. Hellwig and others.

Carl Shirley was responsible for the entertainment of the evening, which was warmly applauded by all present.

R. A. WHITE, *Secretary.*

COMMITTEE REPORTS

REPORT OF THE COMMITTEE ON PHYSIOLOGIC ASSAYING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1920.

This Committee reported last year that it was unanimous in its opinion that the "Biologic Assay Methods" of the U. S. P. IX are unsatisfactory, due to the fact that in many cases

they lack the details which workers in the practical laboratory have found essential in order to obtain accurate results. In other words, the methods are in many instances *not as accurate and up-to-date* as the methods in common use at the present time in the commercial laboratories and therefore do not show as well as they might, the degree of efficiency to which biologic assays have been developed.

Due to this fact very little attention has been paid to the methods as set forth in the U. S. P. IX, as all evidence tends to prove that they are less accurate and reliable than the methods in common use.

In the second paragraph of the chapter on "Biological Assays" in the U. S. Pharmacopoeia, the following statement appears:

> "Brief descriptions of the more commonly accepted methods are given here in order, first, to direct attention of manufacturers to them; second, to ascertain the points of weakness which may exist in them; and finally, to outline methods and establish standards which those interested may adopt, should they desire to assay their products and have them conform to the standards proposed."

As the Tenth Decennial United States Pharmacopoeial Convention will meet in this city next week, we are of the opinion that this Committee can render the most service at this time by reporting what we consider to be "points of weakness" which exist in the present U. S. P. methods.

We therefore submit the following detailed constructive criticisms of the present U. S. P. "Biologic Assay Methods:"

CANNABIS.

Page 605. "Before administration the animal should not be fed for twenty-four hours in order to hasten absorption."

It is not necessary to withhold food for more than ten to twelve hours before making a test, as the stomach will be completely emptied in this time and it will not be so hard on the animal.

> "The head of the animal being held, its mouth is opened and the capsule or pill is placed upon the back of the tongue. Usually the drug is easily swallowed when given in this way, but this may be facilitated by giving the animal a small amount of water to drink."

This method works sometimes, but, as a general rule, the dog does not feel inclined to take capsules so easily. In practical work it will be found that it is almost impossible to make the dog swallow a capsule by the above method. Pulling the tongue well forward, placing the capsule far on the back of it, and then releasing the tongue, is an improvement, but the best method is the following:

> "Open the animal's mouth by forcing the thumb and index finger of the left hand between the jaws, back of the teeth. The capsule is then placed on the back of the tongue with the right hand and the mouth quickly closed; while still holding the mouth shut the animal can be made to swallow the capsule immediately by slapping it on the throat."[1]

By this method the most obstinate dog can be made to swallow the capsule on *first* attempt.

Until a standard extract is furnished by some central authority to be used in adjusting the strength of our standard preparation nothing is gained by comparing the effects produced by the unknown with those produced by a standard preparation. According to the U. S. P., a manufacturer should prepare a standard by adjusting a preparation until it is of such strength that 0.03 mil per kilo of the fluidextract will produce incoördination.

Why not adopt 0.02 mil per kilo as a standard and calculate the strength of the unknown by comparing the dose of it necessary to produce incoördination with the above 0.03 mil per kilo instead of the amount of the standard necessary to produce the same effect? If the standard is of proper strength it will require 0.03 mil per kilo. The only object for assaying the standard preparation each time would be to avoid errors due to the variation in the susceptibility of dogs. The use of a standard preparation, unless supplied by some central authority, will not avoid this error because the standard preparation is adjusted to the above standard dose

[1] Pittenger, "Biochemic Drug Assay Methods," page 101.

and not to standard dogs. The operator is just as liable to have dogs which are over or under normal susceptibility when adjusting the standard as when assaying the unknown, thus making the standard slightly over or under strength. By adopting the longer process of assaying both standard and unknown each time, the error due to variation in susceptibility is only increased because you adopt as a standard preparation one which may be slightly over or under strength and then adjust all subsequent preparations to this, thus making the same error in all, whereas by the shorter method of adopting a definite dose as a standard we only occasionally have a preparation a little off strength, due to an over or under susceptibility of the dogs used on that particular assay.

Due to the variation in susceptibility of different dogs, the method is essentially comparative and not absolute. This necessitates the adoption of an arbitrary standard with which the activity of the unknown can be compared. The U. S. P. method would, therefore, be very satisfactory had the Committee gone only a step farther and, as suggested by Pearson,[1] made arrangements for supplying manufacturers with a suitable standard with which to compare the activity of their preparations. Until such a standard is supplied, however, it is only a waste of time to run an assay on a standard preparation, *which the manufacturer has prepared himself*, each time an unknown sample is tested.

The method of stating the standard is open to criticism. The U. S. P. states:

> "When assayed biologically Fluidextract of Cannabis produced incoördination when administered to dogs in a dose of not more than 0.03 mil per kilogramme of body weight."

According to the above statement a dose larger than 0.03 mil per kilo would not produce incoördination. The words "not more than" should either be omitted or changed to

> "When assayed biologically not more than 0.03 mil per kilogramme of body weight, of Fluidextract of Cannabis should be required to produce incoördination when administered to dogs."

ACONITE.

The proposed "time limit" of 12 hours is very objectionable, as this means 12 hours after the guinea-pigs are injected. When you add to this the time of weighing animals, preparing solutions for injections, making injections, etc., the test consumes 13 hours, which cannot be included in the ordinary working day and makes a rather long week for men employed in laboratories which run these assays almost daily. We would suggest a 24-hour "time limit."

Pittenger by recording the results obtained by using 2, 3 and 24 hours as a "time limit," proved that the most concordant results are obtained by using 24 hours as the "time limit."

We do not doubt but that a 12-hour method is just as accurate as the 24-hour method, but it is very objectionable for the reason stated.

Your Committee cannot too strongly recommend that the biologic assay instead of the chemical assay for Aconite be made compulsory.

The chemical assay is a very accurate determination of the alkaloidal content of Aconite, but it is not nearly as good an index to the therapeutic value of the drug, or its preparations, as the pharmacodynamic test. It has been definitely proven by many workers that the results of the present chemical assay do not parallel the therapeutic activity of the drug. In other words, it often happens that a preparation of Aconite will run high in the chemical test and low in the physiologic test, due to the fact that a chemic assay does not express the true activity of the drug because it also estimates other alkaloids of lower activity than Aconitine.

This discrepancy between the two tests is easily understood when we consider the nature of Aconitine and realize how the acetyl and benzol groups are split off, thus reducing the physiologic activity of the product without destroying its alkaloidal nature, allowing it still to be estimated as an alkaloid in the chemical assay process.

The present pharmacopoeia makes the chemical test compulsory and at the same time recommends that the drug be assayed by the pharmacodynamic method. For the reason stated above it is impossible to standardize the product by both methods when the results obtained by one do not parallel those obtained by the other.

It is to be recommended, therefore, that the pharmacodynamic test be made compulsory in place of the chemical test.

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[1] Pearson, A. PH. A., Nov. 1916.

DIGITALIS-STROPHANTHUS-SQUILL.

The principal criticism of the method as given in the Pharmacopoeia is in regard to the technique recommended for injecting the doses into the frogs.

The U. S. P. states:

"After the frogs have been weighed as described, the doses to be given are calculated according to their weights and are *measured into small conical glasses by means of a finely graduated pipette.* The doses of the preparation which are to be injected should be as uniform in quantity as possible and *should not exceed 0.015 mil for each gramme of body weight of frog.*" * * * "When the doses are ready, they may be injected into the anterior lymph sac of the animal. This is done by means of a *glass pipette,* which is drawn out to a fine point. The frog is held on its back in one hand and the pipette with the contained drug in the other, the mouth of the frog is opened with the point of the pipette and, carefully avoiding the tongue, the floor of the mouth is punctured and the point of the pipette is then seen to enter the anterior lymph sac of the frog. The contents of the pipette are now forced into the sac, either by gravity or by gently blowing, if necessary. In the latter case, care should be taken not to introduce air into the sac."

It is absolutely impossible to obtain accurate results if this technique is followed. It will be noted that the average frog should weigh 20 Gm. and that the dose injected should not exceed 0.015 mil for each gramme or 0.3 mil for a 20-Gm. frog. You are directed to measure this 0.3 mil by means of a *finely graduated pipette* into a conical glass. This *very small dose* (0.3 mil) is then sucked up into another *sharp-pointed pipette* and forced into the lymph sac by blowing.

The error due to the amount of solution left in the conical vessel and the second pipette is indeed great when compared with the very small dose given.

The use of the second pipette and the conical glass vessel is no doubt recommended because it is impossible to force the preparation into the lymph sac by blowing and at the same time accurately measure the dose to the hundredth of a mil.

The two pipettes and the conical glass vessels should be replaced by an all-glass or "Record Tuberculin Syringe" which is graduated in hundredths of a mil. By the use of one of these syringes the *actual amount of the preparation injected* can be measured to the hundredth of a mil, whereas by the U. S. P. method we know only the amount of solution placed in the conical vessel and not the amount actually injected.

The U. S. P. method for standardizing the "digitalis series" has the following features which commend it strongly as a satisfactory method for commercial or scientific use:

(*a*) It is reasonably economic.
(*b*) It is quickly applied.
(*c*) It is fairly accurate.
(*d*) It makes use of one of the most typical effects of the drug.

On the other hand, the advocates of the "M. L. D." frog heart method claim that the U. S. P. method possesses the following features which are serious defects in establishing the degree of activity of the digitalis series as therapeutic agents:

(*a*) On account of the relatively short time between the dosing of the animal and reading the end-point. Slow or delayed absorption may cause a low valuation to be given to a drug having high therapeutic value.

(*b*) The inflexibility of the time of reading the end-point does not allow for variability in the frogs and the small number of frogs used may not correct this error. It is difficult at times to conclude whether the heart should be classed as beating or stopped at 60 minutes, nor what to conclude if it resumes a normal beating or comes to rest in systole soon after the hour.

(*c*) The rough handling in pithing and laying bare the heart cannot but effect the results unfavorably. While every frog is subjected to the same treatment this does not entirely remove the objection.

This Committee would, therefore, recommend that before re-adopting the "One-hour" frog method as the official method, the Revision Committee carry out sufficient comparative laboratory experiments with the "One-hour" and "Twelve-hour" methods to decide definitely which is the better of these two methods.

The standard, ouabain, adopted by the Committee for comparison in measuring the activity of the digitalis series of heart tonics has been criticised because different lots are not uniform in comparison.

"While it is true that the standard, in physiological assaying, is merely to measure the resistance of the frogs, this resistance is of such a complex character that it should be measured by a standard, not in any respect open to criticism. The standard, if not identical with the sample, should be one whose composition and identity have been established.

The description of ouabain indicates that it is derived from a non-official strophanthus seed, that its composition is indefinite in that it crystallizes with varying quantities of water and that it does not yield a crystalline strophanthin and cannot, therefore, be assayed chemically to establish uniformity. That it is not uniform is shown by Rowe,[1] a conclusion which may be deduced from the fact that the M. S. D. of ouabain accepted by the U. S. P. Committee is 0.0000005, while the average of the three samples tested by Rowe is 0.00000086 or 76 percent more—a difference not due to temperature, because in all cases the tests were carried out at 20° C. Further, it is an expensive substance and obtainable only by importation." (Hamilton[3]).

Strophanthin from Kombe seed can be made of uniform composition and activity according to Brauns and Closson[2] and is, therefore, preferable, to ouabain for every reason, but its use seems especially logical because of being derived from the official strophanthus seed.

This Committee would, therefore, recommend that before readopting *Ouabain* as the "standard substance" for standardizing animals which are subject to seasonal variation, a thorough study of Strophanthin Kombe should be made, as this substance is to be preferred to ouabain for the reasons stated.

SUPRARENAL GLAND.

As stated by Hamilton,[3] "the biologic assay of products of the suprarenal gland is open to criticism in only two particulars, *i. e.*, in the method of measuring and administering the doses and in attempting to check the results as described.

"Using both femoral veins for injecting sample and standard is to obviate the possible mixing of the two solutions if both are injected into the same vein. But it introduces a very much greater source of error. The amount injected can be much more easily measured by use of a pipette than by injecting with a syringe, through a rubber connection and cannula, and the dose after being injected can be easily and completely washed into the blood stream by a follow-up injection of 2 mils physiologic salt solution. When this procedure is followed no mixing of two injections is possible."

Another very good method is to *expose the saphenous vein at its junction with the femoral.* When giving injections the needle of an all-glass syringe is inserted far enough through the saphenous vein to allow the point to project directly into the blood stream in the femoral vein. After injecting the preparation, the needle can be withdrawn and the saphenous vein clamped with bulldog clamp. The preparation thus injected is entirely carried into the circulation by means of the main current of blood in the femoral vein.

The "checking of an assay by making injections of sample and of standard into opposite sides from the first used is no check except in so far as it checks conditions on the two sides of the dog. This feature can better be eliminated by using only one side. Further, by the official method, if it is impossible to complete the test and the check on a dog, no option is left but to repeat both test and check on another dog. It is occasionally necessary to check an assay on a second dog when conditions during the first test were unfavorable for accuracy but no advantage results from a retest on the same dog."

PITUITARY EXTRACTS.

The majority of this Committee would recommend that the "Isolated Uterus" method be *retained* as the official method for testing Liquor Hypophysis.

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[1] Rowe, J. A. PH. A., Nov. 1916.

[2] Brauns and Closson, J. A. PH. A., May 1913.

[3] Hamilton, "Biological Standardization," *Amer. Jour. Pharm.*, Feb. 1917.

We are of the opinion, however, that more concordant results can be obtained by employing the *whole* one horn of the uterus of a 350 to 425-Gm. pig as suggested by Pittenger,[1] instead of only a *segment* of the one horn of the uterus of a 250-Gm. guinea-pig.

The assay for Liquor Hypophysis requires more experience on the part of the operator than any other biologic test in the Pharmacopoeia, and, although compulsory for a U. S. P. product, it is not included in the chapter on Biologic Assays.

Under "Liquor Hypophysis," however, we find that the product must be tested "as directed by the United States Hygienic Laboratory."

We would recommend that the complete details of this test be included in the U. S. P.

"The principal criticism of the U. S. P. method for testing Liquor Hypophysis, however, is not with the method itself, but with the standard adopted.

It seems unwise as well as unnecessary to choose as the standard substance one which has only one of the typical physiological effects of hypophysis, and which alone has no therapeutic application equivalent to that of extracts of the pituitary gland." (Hamilton).[2]

Before re-adopting a complex substance like beta-iminazolylethylamine hydrochloride as a standard for adjusting the strength of commerical preparations, a thorough study of the following points should be made:

1. Degree of uniformity in the physiologic action of different available samples of the proposed standard substance.
2. Rate of deterioration, both in solution and powder.
3. Effect of repeated doses on the isolated uterus.

A similar study should be made of each of the following substances:

1. Dried, defatted, powdered Posterior Lobe as suggested by Hamilton.[3]
2. Water-soluble powder prepared by Aldrich.
3. Potassium Chloride, suggested by Spaeth.[4]

After a thorough study and comparison of the above substances, the one best suited for the purpose should be adopted.

The standard adopted by the U. S. P. IX is very low because it has been shown by Pittenger[5] that the commercial extracts prepared by the leading pharmaceutical houses, which have been on the market for several years and to which the physicians have become accustomed as to dosage, etc., are from three to five times as active as an extract of the U. S. Pharmacopoeia standard strength. This is unfortunate as there is no reason why a weaker preparation than the one to which physicians have become accustomed, should be placed on the market.

It is to be hoped, therefore, that the next edition of the Pharmacopoeia will contain definite requirements as to the purity and uniformity of activity of the standard test substance and that an accurate coördination of the required U. S. P. strength of Liquor Hypophysis and that of the common pharmaceutical practice may be secured.

We would also recommend that Ergot be included among the drugs to be biologically assayed and that the Committee during the next year carry out the necessary experiments to develop the method.

In conclusion, your Committee would recommend that a copy of this report be sent to the Chairman of the U. S. P. Revision Committee for consideration in compiling the next edition of the U. S. P.

Respectfully submitted,

(Signed) H. C. COLSON,
H. C. HAMILTON,
W. A. PEARSON,
P. S. PITTENGER,
Chairman.

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[1] Pittenger, "An Improved Apparatus for Testing Drugs upon the Isolated Uterus."
[2] Hamilton, *Amer. Jour. Pharm.*, Feb. 1917.
[3] Hamilton, A. PH. A., Oct. 1912.
[4] Spaeth, *J. Pharm. and Exper. Ther.*, Apr. 1920.
[5] Pittenger, Hamilton[4] and Eckler[5], J. A. PH. A., Feb. 1917.

BIBLIOGRAPHY OF PHARMACEUTICAL RESEARCH

Conducted by H. V. Arny, Reporter on the Progress of Pharmacy, Chairman of the Committee on Research.

On these pages, each month, will be found a list of articles on pharmaceutical research that appear in the pharmaceutical and other scientific journals of the world. Whenever possible, the list appearing a certain month will record articles appearing in American journals of the preceding month and articles appearing in foreign journals will be recorded as quickly as possible after the journals reach the Reporter.

All articles appearing in these lists will be presented in abstract form in the bound volumes of the Year Book, which will be issued as soon after the end of the year represented as editing and printing conditions permit. Those desiring abstracts immediately can obtain same for a fee of one dollar each by communicating with H. V. Arny, 115 West 68th St., New York, and arrangements can also be made for securing photographic reproduction of entire articles at moderate prices when such are desired.

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Alcohol from mowrah flowers
Bull. Imp. Inst.; through *Pharm. J.*, 104 (Apr. 3, 1920), 339

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Australian Sandalwood
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Calcium acetate from saw-dust
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L'Union pharm.; through *Pharm. Era*, 53 (May 1920), 140

Anon
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Pharm. Era, 53 (May 1920), 140

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Glycyrrhiza as sweetening agent
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J. pharm. chim., 21 (Apr. 1, 1920), 295

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Nat. Drug., 50 (May 1920), 240

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Ber. dtsch. pharm. Ges.; through *Drug. Circ.*, 64 (May 1920), 180

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Compt. rend. Soc. Biol.; through *J. pharm. chim.*, 21 (Mch. 1920), 204

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J. pharm. chim., 21 (Apr. 1, 1920), 295

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Biochem. Ztschr.; through *Pharm. Zent.*, 61 (Feb. 19, 1920), 108

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Apoth. Ztg.; through *Pharm. Zent.*, 61 (Feb. 12, 1920), 84

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Pharm. Zent., 61 (Jan. 22, 1920), 39

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Südd. Apoth. Ztg.; through *Pharm. Zent.*, 61 (Feb. 12, 1920), 103

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Ber. dtsch. Pharm. Ges.; through *Pharm. Zent.*, 61 (Jan. 22, 1920), 46

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Olien en. Vetten; through *J. Soc. Chem. Ind.*, 39 (Apr. 30, 1920), 305A

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Pharm. Zent., 61 (Feb. 12, 1920), 77

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Svensk. Farm. Tidsk.; through *J. Soc. Chem. Ind.*, 29 (Apr. 30, 1920), 304A

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Chem. Ztg.; through *Pharm. Zent.*, 61 (Jan. 22, 1920), 43

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Pharm. J., 104 (Apr. 10, 1920), 349

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Chem. Ztg.; through *Drug. Circ.*, 64 (May 1920), 180

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J. Am. Pharm. Assoc., 9 (May 1920), 501

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Pharm. Weekblad, 57 (Apr. 3, 1920), 381

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J. Agric. Sci.; through *J. Soc. Chem. Ind.*, 39 (Apr. 1920), 309A

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Chem. News, 120 (Apr. 9, 1920), 173

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Compt. rend.; through *J. pharm. chim.*, 21 (Mch. 16, 1920), 249

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Apoth. Ztg.; through *Pharm. Zent.*, 61 (Jan. 22, 1920), 44

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 32.

PHILADELPHIA, PA., April 7, 1920.

To the Members of the Council:

In Council Letter No. 28, a tentative program for the Sixty-eighth annual meeting of the American Pharmaceutical Association, to be held at Washington, D. C., May 5 to May 10, inclusive, was submitted by the Committee on Program and suggestions invited.

The program, as revised, is submitted, as follows:

PROGRAM FOR SIXTY-EIGHTH ANNUAL MEETING.

(See pp. 447–448 April JOURNAL A. PH. A., and revised program p. xviii, of same issue.)

Do you approve the program? This will be regarded as *Motion No. 55 (Approval of Program for 1920 Annual Meeting)*.

Motion No. 56 (Election of Soldier and Sailor Members). You are requested to vote on the following applications for soldier and sailor membership Nos. 670–789. To economize space, the names of the recommenders are omitted, but will be furnished if desired.*

* The Council A. Ph. A., at Washington meeting, voted to omit these names from the Journal pages.

J. W. ENGLAND,
415 N. 33RD STREET. *Secretary.*

A. PH. A. COUNCIL LETTER NO. 33.

PHILADELPHIA, PA., April 22, 1920.

To the Members of the Council:

Motion No. 57 (Election of Soldier and Sailor members). You are requested to vote on the following applications for soldier and sailor membership, Nos. 790–1558.

J. W. ENGLAND,
415 33RD STREET. *Secretary.*

A. PH. A. COUNCIL LETTER NO. 34.

PHILADELPHIA, PA., April 23, 1920.

To the Members of the Council:

Motion No. 58 (Election of Active Members). You are requested to vote on the following applications for active membership:

No. 251. Charles Henry Koeneke, 6821 Manchester Ave., St. Louis, Mo.
No. 252. Christ T. Kapsidas, 3754 Westminster Pl., St. Louis, Mo.
No. 253. William H. Quade, 3335 Blair Ave., St. Louis, Mo.
No. 254. William Chester McGowan, 4251 a St. Louis Ave., St. Louis, Mo.
No. 255. Harry Roellchen, 3707 S. Broadway, St. Louis, Mo.
No. 256. Sigmund Frank, 94 Elliot St., Detroit, Mich.
No. 257. F. J. Britton, 425 N. 26th St., Richmond, Va.
No. 258. Leon Joseph Farley, 312 E. Franklin St., Richmond, Va.
No. 259. Benjamin F. Fiegenbaum, 937 Kentucky St., Lawrence, Kans.
No. 260. Mary C. Wuester, Wichita, Kans.
No. 261. Ina Bechard, Clay Center, Kans.
No. 262. Emily Josephine McCoy, Beattie, Kans.
No. 263. Lawrence Anton Bichlmeier, Everest, Kans.
No. 264. Winnifred A. Jenkins, Seneca, Kans.
No. 265. Henry D. Faxon, c/o Faxon & Gallagher Drug Co., 8th & Broadway, Kansas City, Mo.
No. 266. Peter Elwood Arnold, Plainville, Kans.
No. 267. Paul L. Wells, Neodesha, Kans.
No. 268. James Albert Lyle, 306 N. Mulberry St., Richmond, Va.
No. 269. Harry Valentine Farr, 3600 North 2nd St., St. Louis, Mo.

No. 270. Carmen A. Martinez, 1719 North 15th St., Philadelphia, Pa.

No. 271. Otto Ullrich, Broad St., Gibbstown, N. J.

No. 272. Hardaway Frazier, Auburn, Ala.

No. 273. William M. Jaffe, 35 Hamburgh Ave., Paterson, N. J.

No. 274. Walter M. Frohwein, 112 First St., Elizabeth, N. J.

No. 275. William Adelbert Smith, Culpeper, Va.

No. 276. W. E. Benfield, Hough Ave. and 86th St., Cleveland, Ohio.

No. 277. William H. Jenkins, 2113 North 7th St., Philadelphia, Pa.

No. 278. Maran Tomaszewski, 1131 S. Division St., South Bend, Ind.

No. 279. Mrs. Margaret Jahn, 1638 Seventh St., New Orleans, La.

No. 280. George Henry Marsh, Post Office Box 221, Auburn, Ala.

No. 281. Orrin Shorr, 2217 Arctic Ave., Atlantic City, N. J.

No. 282. Alex. Schampau, 1417 N. 3rd St., Harrisburg, Pa.

No. 283. Julian H. Gary, Franklin, Va.

No. 284. John C. Hopkins, East Radford, Va.

No. 285. Ross B. Parker, 413 N. 10th St., Richmond, Va.

No. 286. William Bryan Myers, 2033 Arch St., Philadelphia, Pa.

No. 287. Enrique Seraballs Aulet, 1629 Girard Ave., Philadelphia, Pa.

No. 288. Isidor Rebarber, 901 S. 3rd St., Philadelphia, Pa.

No. 289. Anthony Cyril Oswald, 338 S. 15th St., Philadelphia, Pa.

No. 290. David Gross, 1946 S. 10th St., Philadelphia, Pa.

No. 291. Lory Curley McAllister, 1233 S. 58th St., Philadelphia, Pa.

No. 292. Carl E. Zook, 2033 N. 13th St., Philadelphia, Pa.

No. 293. Maurice L. Lieber, 338 Catharine St., Philadelphia, Pa.

No. 294. Philip Frederic Fackenthall, Medical College of Va., Richmond, Va.

No. 295. Leo G. Penn, N. E. Cor. 6th & Jefferson Sts., Philadelphia, Pa.

No. 296. Eugene O. Leonard, 619 N. Arthur St., Box 548, Pocatello, Idaho.

No. 297. Forrest Baldwin Dukenson, 504 Denny St., Richmond, Va.

No. 298. John T. Monroe, Medical College of Va., Richmond, Va.

No. 299. Miguel A. Tamayo, 323 Spruce St., Philadelphia, Pa.

No. 300. Jeppe C. M. Makholn, 2 Park Ave., Rutherford, N. J.

No. 301. Joe Keys, 509 N. 10th St., Richmond, Va.

No. 302. W. C. Miller, 1414 E. Main St., Richmond, Va.

No. 303. Joe Willard Quillen, Seven Pines Genl. Ordnance Depot, Richmond, Va.

No. 304. Bernice A. Ostrowski, 716 S. Holman St., Hammond, Ind.

No. 305. William Thrall Adams, 5700 So. Halsted St., Chicago, Ill.

No. 306. John Farwell Hott, 218 E. Main St., Monticello, Ill.

No. 307. Edward E. Haller, South Side, First St., Forreston, Ill.

No. 308. Albert G. Fischer, 9200 Commercial Ave., Chicago, Ill.

No. 309. Nicholas Raybield, 2126 Indiana Ave., Chicago, Ill.

No. 310. Edgar C. Bellezza, 2558 Chicago Ave., Chicago, Ill.

No. 311. Frederick Francis Ferdinand Behrens, 1152 So. Western Ave., Chicago, Ill.

No. 312. Frank J. McCabe, 3180 Broadway, Chicago, Ill.

No. 313. Harry L. Block, 638 W. 18th St., Chicago, Ill.

No. 314. Robert Robinson, 40 S. Ashland Blvd., Chicago Ill.

No. 315. George Corson, 1628 Warren Ave., Chicago, Ill.

Motion No. 59 (Election of Soldier and Sailor Members). You are requested to vote on the following applications for soldier and sailor membership Nos. 1559–1590.

J. W. ENGLAND,
415 N. 33RD STREET. *Secretary.*

COUNCIL MEETINGS, 1919–1920

The second session* of the Council of the American Pharmaceutical Association for 1919–20 was held at the Willard Hotel, Washington, D. C., on Thursday, May 6, 1920, at 9 A.M., and adjournment was had until 1.30 P.M., when the meeting reconvened.

* First session was held in New York City, August 30, 1919.

Chairman L. C. Hopp presided.

Present: Messrs. H. V. Arny, J. H. Beal, G. M. Beringer, E. Fullerton Cook, W. B. Day, Jacob Diner, Clair A. Dye, E. G. Eberle, F. R. Eldred, J. W. England, R. P. Fischelis, H. C. Fuller, John G. Godding, S. L. Hilton, L. C. Hopp, Jeannot Hostmann, E. F. Kelly, C. H. LaWall, R. D. Lyman, C. A. Mayo, W. O. Richtmann, W. F. Rudd, E. A. Ruddiman, L. A. Seltzer, H. M. Whelpley and F. J. Wulling.

The reading of the minutes of the first session for 1919–20, held at the Hotel Pennsylvania, New York, on August 30, 1919, was on motion dispensed with.

Announcement was made of the passage of Motions No. 51, No. 52, No. 53, No. 54, No. 55, No. 56, No. 57, No. 58 and No. 59, of the Council Letters of 1919–20.

Applications for active membership from Nos. 316 to 493 inclusive were presented and favorably acted upon. The list was as follows:

No. 316, Clarence E. Holston, Box 143, Nashville, Ill. No. 317, John B. Cooke, Goodland, Ind. No. 318, Allan Humphrey, 3210 Arthington St., Chicago, Ill. No. 319, W. Edwin Brown, 1637 Hampshire St., Quincy, Ill. No. 320, Sidney Schmidt, 1635 So. Central Park Ave., Chicago, Ill. No. 321, Virgil George Connolley, Mt. Pulaski, Ill. No. 322, Lew Brown Hamilton, 2185 Main St., Galesburg, Ill. No. 323, Eric John Erickson, 5636 S. Throop St., Chicago, Ill. No. 324, Ralph Eugene Terry, 522 Woodlawn Ave., Aurora, Ill. No. 325, Stanley Edward McBride, 1531 W. Adams St., Chicago, Ill. No. 326, Ira Isadore Eisenberg, 1651 Ridgeway Ave., Chicago, Ill. No. 327, Baxter Elijah Lightfoot, 5737 W. Lake St., Chicago, Ill. No. 328, Marietta Lucille Carothers, 2455 E. 72nd St., Chicago, Ill. No. 329, Harry N. Dinnsen, 2537 Cortland St., Chicago, Ill. No. 330, John Niemeyer, Winslow, Ill. No. 331, Richard Arthur Gustav Linke, 1055 Fullerton Ave., Chicago, Ill. No. 332, Cecil T. DeMonbrun, Shelbyville, Ill. No. 333, Herbert Zettelmeyer, 1302 Belle Ave., Lakewood, Ohio. No. 334, Clarence E. Renneckar, 1144 Central Ave., Wilmette, Ill. No. 335, Edward George Geiger, 830 Western Ave., Peoria, Ill. No. 336, Charles Wayne Coffman, 144 N. Church St., Waynesboro, Pa. No. 337, Nicholas Joseph Edge, 1834 So. 22nd St., Phila., Pa. No. 338, Thomas Joseph Daly, 2329 N. Howard St., Phila., Pa. No. 339, Adam J. Kwiatkowski, 4774 Melrose St., Frankford, Phila., Pa. No. 340, William Marlette Plum, Ambassador Drug Shop, Atlantic City, N. J. No. 341, John A. Knouse, 218 N. 15th St., Harrisburg, Pa. No. 342, Grover Wellington Neiffer, 1811 Arch St., Phila., Pa. No. 343, Philip Neu, 88th & Church Sts., East St. Louis, Ill. No. 344, Amel E. Freburg, 402 7th St., Rockford, Ill. No. 345, Henry Hoagland Bartholomew, 130 North Fifth Street, Quincy, Ill. No. 346, Rollin L. Cate, 1112 N. Madison St., Streator, Ill. No. 347, Edward A. F. Borucki, 8468 Commercial Ave., Chicago, Ill. No. 348, Cyrus Christopher Webster, 100 East Main St., Staunton, Ill. No. 349, Clarence Owen, 1301 N. Glendale Ave., Peoria, Ill. No. 350, Thomas Wesley Kirby, 3 South State St., Jerseyville, Ill. No. 351, Ella K. Dubsky, 1901 W. 51st St., Chicago, Ill. No. 352, Jose Alberto Vivo, 1109 Church St., Norfolk, Va. No. 353, John D. Coleman, 230 Granby St., Norfolk, Va. No. 354, Lemuel Ray Shadwell, 230 Granby St., Norfolk, Va. No. 355, Roshier W. Miller, 1001 North Ave., Richmond, Va. No. 356, Gilbert Harvey, 4933 N. 12th St., Phila., Pa. No. 357, George Evans Lacy, Williamsburg, Va. No. 358, George K. Foster, 701 Main St., Miles City, Mont. No. 359, Clarence R. Fuller, 415 E. Park Ave., Anaconda, Mont. No. 360, J. F. Murray, Malto, Mont. No. 361, E. A. Delicate, Edwardsville, Ill. No. 362, Marcus Curshan, 1257 So. Kedzie Ave., Chicago, Ill. No. 363, Josephine C. Hauber, 655 Buckingham Pl., Chicago, Ill. No. 364, Clyde M. Pate, 1515 W. Monroe St., Chicago, Ill. No. 365, Warren Frank Harris, 694 Second Ave., Aurora, Ill. No. 366, Seward Haise Guinter, 4250 W. 21st Place, Chicago, Ill. No. 367, James H. Caan, 514 Lenox Ave., New York, N. Y. No. 368, Egidio Caracciolo, 47 East 125th St., New York, N. Y. No. 369, L. Wallis Gibbons, 81 Fulton St., New York, N. Y. No. 370, Nat. P. Steckler, 156 Reade St., New York City, N. Y. No. 371, Albert J. Sterling, 15 Park Row, New York City, N. Y. No. 372, Adolph Rigelhaupt, 10707 Lee Ave., Cleveland, Ohio. No. 373, Christian Henry Wagner, Mt. Pulaski, Ill. No. 374, Anton W. Frugl, 1758 W. 21st St., Chicago, Ill. No. 375, Frank Begale, 1654 Larrabee St., Chicago, Ill. No. 376, H. Daley Garrison, Pearl, Ill. No. 377, Jeremiah A. Hynes, 158 W. Harrison St., Chicago, Ill. No. 378, Julius Martin Keil, Western Springs, Ill. No. 379, Henry John Schulte, 1501 E. 55th St., Chicago, Ill. No. 380, Walter B. Hattenhauer, 215 E. Main St., Streator, Ill. No. 381, Frank

Thomas, 308 28th St., Cairo, Ill. No. 382, Paul Eiche, 313 W. Jefferson St., Effingham, Ill. No. 383, Myron A. Karras, 740 Grand Ave., St. Paul, Minn. No. 384, Benton Bayard Byers, 1831 E. Superior St., Duluth, Minn. No. 385, J. G. Kiesel, L. B. 549, Portland, Ore. No. 386, Frank M. Hickman, 3400 University Ave., S. E., Minneapolis, Minn. No. 387, Charles Hall Brown, Cor. First & Broadway, Little Falls, Minn. No. 388, Edward A. Grochau, 332 West 1st St., Duluth, Minn. No. 389, Sigfred M. Vikre, Boyd, Minn. No. 390, Carl John Rudeen, 237 E. 7th St., St. Paul, Minn. No. 391, H. J. Gronberg, Hoffman, Minn. No. 392, Henry Jurgen H. Jeronimus, 501 E. 4th St., Duluth, Minn. No. 393, Ray O. Pfefferle, Madelia, Minn. No. 394, Ida Iverson, Fulda, Minn. No. 395, Theodore Swanberg, Cokato, Minn. No. 396, Herman C. Becker, Olivia, Minn. No. 397, Thomas C. Biscoe, Moose Lake, Minn. No. 398, Adolph A. Fahlstrom, 400 Syndicate Bldg., Minneapolis, Minn. No. 399, Louis Speigel, 350 E. 38th St., Minneapolis, Minn. No. 400, Charles M. Jacobson, Chisholm, Minn. No. 401, Norman T. Magnussen, Wood Lake, Minn. No. 402, Roy Theodore Scott, Monticello, Minn. No. 403, Donald Robertson, Argyle, Minn. No. 404, Alex. H. Fjeldstad, 3449 Cedar Ave., Minneapolis, Minn. No. 405, Andrew G. Anderson, 120 W. Robert St., Crookston, Minn. No. 406, Allan M. Gilbert, Halstad, Minn. No. 407, George A. Presley, Milaca, Minn. No. 408, Maurice Daniel Lonergan, 230 20th Ave., North, Minneapolis, Minn. No. 409, Evan C. Lee, 208 Lincoln Ave., W. Fergus Falls, Minn. No. 410, Edmund J. Fuchs, 796 E. 7th St., St. Paul, Minn. No. 411, Arthur E. Howe, Clinton, Minn. No. 412, Robert J. Hunt, 706 First Ave., No., Minneapolis, Minn. No. 413, W. B. Decker, 100 E. Locust St., Fairbury, Ill. No. 414, George M. Knochel, 505 Pulaski St., Lincoln, Ill. No. 415, Diana Lipsow, 905 Collins St., Joliet, Ill. No. 416, J. Ralph Michael, 1326 Pacific Ave., Tacoma, Wash. No. 417, Elwell H. Hoyt, 911 Broadway, Tacoma, Wash. No. 418, Arthur W. Zander, 2253 Burling St., Chicago, Ill. No. 419, F. M. Ware, State and Pearl Sts., Jerseyville, Ill. No. 420, Charles A. Dollinger, Wheaton, Ill. No. 421, E. W. Jaworski, 1658 W. 18th St., Chicago, Ill. No. 422, William Levi Sides, 5527 Michigan Ave., Chicago, Ill. No. 423, Harry M. Knight, 170 N. Queen St., Lancaster, Pa. No. 424, Isaac Wayne Starkey, Phila. Barge Club, Falls of Schuylkill, Pa. No. 425, Jennings B. Hartman, Dallastown, Pa. No. 426, Henry S. Raymond, 209 Carpenter St., Phila., Pa. No. 427, Horace W. Sellards, 2515 Ohio Ave., Cincinnati, Ohio. No. 428, Wiley Jones Cox, 1714 Poplar Ave., Memphis, Tenn. No. 429, Anthony Francis Calomino, 4026 W. Congress St., Chicago, Ill. No. 430, Edward J. Safranek, 4035 W. North Ave., Chicago, Ill. No. 431, Harry M. Frankel, 1100 3rd St., Louisville, Ky. No. 432, Edward Gibson Isaacs, 240 W. Jefferson St., Louisville, Ky. No. 433, John Sheppard Goings, 323 E. Brickinridge St., Louisville, Ky. No. 434, Ernest Oatey, Jeffersontown, Ky. No. 435, John Samuel Wells, Danville, Ky. No. 436, Elbridge Lee Snapp, 415 Main St., Paris, Ky. No. 437, Scott Wilber Johnson, 122 W. Chestnut St., Louisville, Ky. No. 438, August F. Barth, Broadway and Market Sts., Alton, Ill. No. 439, Charles F. Merker, 326 Missouri Ave., East St. Louis, Ill. No. 440, Albert Magnusson, Arcola, Ill. No. 441, L. E. Gholson, Sesser, Ill. No. 442, Frank Samuel Childs, Buffalo Prairie, Ill. No. 443, J. Raymond Mahaffy, 556 E. 73rd St., Chicago, Ill. No. 444, Lewis W. Waxman, 6528 Ashland Ave., Chicago, Ill. No. 445, Albert Frank Vondrasek, 2303 S. 61st Court, Cicero, Ill. No. 446, Ralph Wm. Windmueller, 3741 Grand Ave., Chicago, Ill. No. 447, Randolph Ellison Gaffney, 1427 E. Adams St., Springfield, Ill. No. 448, Louis Karel, 3634 W. 26th St., Chicago, Ill. No. 449, Edward Gundlach, 3158 W. Lake St., Chicago, Ill. No. 450, Arthur Van Hooser, Metropolis, Ill. No. 451, Carl Howard Lowary, cr. Wm. S. Merrell Co., Cincinnati, Ohio. No. 452, Charles Emerson Johnson, 122 State St., Penn's Grove, N. J. No. 453, Clair Channell Moore, 1017 E. Market St., York, Pa. No. 454, Charles Raymond Schaeffer, 429 North St., Emaus, Pa. No. 455, Paul Schmeling, Wymore, Nebr. No. 456, Oscar Joseph Schmitz, Atchison, Kans. No. 457, Daniel Hooker Spencer, 1014 Miss. St., Lawrence, Kans. No. 458, Carrie Grey Mossop, 302 E. Lancale St., Baltimore, Md. No. 459, John Christian Krantz, Jr., 1052 N. Broadway, Baltimore, Md. No. 460, W. S. Denton, Beardstown, Ill. No. 461, William George Harper, Lucas and Calhoun, Charleston, S. C. No. 462, John Thomas Lloyd, Court and Plum Sts., Cincinnati, Ohio. No. 463, Solomon Balzer, Mountain Lake, Minn. No. 464, Wesley St. Clair, 35 W. Grotto St., St. Paul, Minn. No. 465, J. August Anderson, 2906 W. 3rd St., Duluth, Minn. No. 466, Raymond M. Duncan, Main St., Pierz, Minn. No. 467, Jennie L. Phillips, Clear Water, Minn. No. 468, Vivian Vina Vogel, 4225 Minnehaha Ave., Minneapolis, Minn. No. 469, Elizabeth

M. Malerich, Akeley, Minn. No. 470, Elizabeth Marion Schiesser, 703 4th St., S. E., Minneapolis, Minn. No. 471, Beatrice Chondek, 1326 8th St., S. E., Minneapolis, Minn. No. 472, Esther Spetz, 510 13th Ave., S. E., Minneapolis, Minn. No. 473, Sara B. Cohler, cr. A. Aldes, 290 Aurora Ave., St. Paul, Minn. No. 474, Antoinette Aldes, 260 Aurora Ave., St. Paul, Minn. No. 475, Margaret Boothroyd, 819 University Ave., S. E., Minneapolis, Minn. No. 476, Wiley Collins Baines, 365 Aurora Ave., St. Paul, Minn. No. 477, Guy Bernhardt Havland, 704 15th Ave., S. E., Minneapolis, Minn. No. 478, Edward C. Higgins, 3210 Arthington St., Chicago, Ill. No. 479, Charles Frank Haselberger, 5208 S. Laflin St., Chicago, Ill. No. 480, Hans Charles Pahl, 3054 N. Albany Ave., Chicago, Ill. No. 481, Henry A. Buerkle, 307 W. Main St., DuQuoin, Ill. No. 482, Leo John Gossmann, Cor. 3rd and Locust Sts., Pana, Ill. No. 483, Hyman N. Lesser, 2054 N. California St., Chicago, Ill. No. 484, Jaroslav Robert Madera, 5141 S. Lincoln St., Chicago, Ill. No. 485, James Nathan Starbuck, Valier, Mont. No. 486, Constantine S. Eftaxopoulos, 606 Blue Island Ave., Chicago, Ill. No. 487, Ingoard Martinius Scott, 3614 W. Grand Ave., Chicago, Ill. No. 488, Earl R. Serles, Sta. A, Brookings, S. D. No. 489, Ernest E. Stanford, 13518 Milan Ave., Cleveland, Ohio. No. 490, Emery Tyler Motley, 11816 Ashbury Ave., Cleveland, Ohio. No. 491, William Forsaith Steever, 1324 Walnut St., Harrisburg, Pa. No. 492, Thomas J. Russell, 760 E. 21st St., Erie, Pa. No. 493, Frank J. Reddon, Main St., Susquehanna, Pa.

Applications for soldier and sailor membership, from No. 1591 to 2073 inclusive,were presented and favorably acted upon.

The report of the Secretary of the Council was presented and its recommendation adopted. It was as follows:

MEMBERS OF THE COUNCIL:

GENTLEMEN: The Council for 1919–20 held one session at New York (1919) meeting.

Thirty-four Council Letters have been issued covering 110 pages and 59 motions.

A synopsis of the motions of the Council is attached.

The applications for membership received to date number 493; the number for last year by the first session of the Council at New York was 520.

At the 1919 meeting, 142 Soldier and Sailor Pharmacist Members were elected. Since then 2073 additional applications for such membership have been received, making a total of 2115 S. and S. members to date.

The membership of the Council numbers 42, of which 19 are representatives of local branches.

There are 22 local branches.

The three members of the Council elected by mail in November last, for 1920–21 were: Harry B. Mason, Detroit, Mich.; Lucius E. Sayre, Lawrence, Kans.; and Frederick J. Wulling, Minneapolis, Minn.

The business of the Council between annual meetings is, as you know, conducted through Council Letters sent to the membership and published in full in the JOURNAL. They contain reports of discussions which, sometimes, occupy considerable space. After actions have been decided upon, the reports of the discussions usually have limited value only. Hence, your Secretary would suggest that he be authorized to condense the Council Letters for publication in the JOURNAL, eliminating all unnecessary matter. Every page of the JOURNAL costs dollars, and economy of space is most desirable.

Respectfully submitted,

J. W. ENGLAND, *Secretary of Council.*

SYNOPSIS OF MOTIONS OF THE COUNCIL FOR 1919–1920.

Motion No. 1. That the report of the Committee on Conservation be received and referred to the Committee on U. S. Pharmacopoeia of the Association. Carried.

Motion No. 2. Election of active members Nos. 1 to 23 inclusive. Carried.

Motion No. 3. Election of S. and S. Members, Nos. 1 to 47 inclusive. Carried.

Motion No. 4. Organization of Virginia Branch. Approved.

Motion No. 5. That an appropriation of $25 be made to the Joint Committee on Horticultural Nomenclature. Carried.

Motion No. 6. That an appropriation of $78.06 be made for item of Traveling Expenses of Budget of Appropriations. Carried.

Motion No. 7. Election of Active Members Nos. 24 to 38 inclusive. Carried.

Motion No. 8. Election of S. and S. Members Nos. 48 to 68 inclusive. Carried.

Motion No. 9. That Sinclair S. Jacobs be elected as the Atlanta Representative of the Committee on Transportation of 1919–20. Carried.

Motion No. 10. That five hundred dollars be appropriated for carrying on the work of the World War Veterans Section. Carried.

Motion No. 11. That certain Year Books and Journals desired by Prof. A. Tschirch for the University of Bern be forwarded to him with the compliments of the American Pharmaceutical Association. Carried.

Motion No. 12. Election of Active Members Nos. 39 to 96 inclusive. Carried.

Motion No. 13. Election of S. and S. Members Nos. 69 to 129 inclusive. Carried.

Motion No. 14. Election of S. and S. Members Nos. 130 to 190 inclusive. Carried.

Motion No. 15. That the Proposed Budget of Appropriations for 1920 be approved. Carried.

PROPOSED BUDGET OF APPROPRIATIONS FOR 1920.

Appropriations for General Expenses:

No. 1	Salaries	$ 6400.00
No. 2	Printing, Postage and Stationery	1000.00
No. 3	Clerical Expenses, Secretary's Office	416.00
No. 4	Clerical Expenses, Treasurer's Office	250.00
No. 5	Miscellaneous Expenses	300.00
No. 6	Stenographers	350.00
No. 7	Traveling Expenses	650.00
No. 8	Committee on Membership	500.00
No. 9	Committee on Unofficial Standards	100.00
No. 10	Year Book	4000.00
No. 11	Premium on Treasurer's Bond	62.50
No. 12	Auditing Treasurer's Books	60.00
No. 13	National Drug Trade Conference	200.00
No. 14	Section on Scientific Papers	25.00
No. 15	Section on Education and Legislation	25.00
No. 16	Section on Commercial Interests	25.00
No. 17	Section on Practical Pharmacy and Dispensing	25.00
No. 18	Section on Historical Pharmacy	25.00
No. 19	Women's Section	25.00
No. 20	National Syllabus Committee	25.00
No. 21	Committee on Recipe Book	50.00
No. 22	Committee on Local Branches	25.00
		$14538.50

Appropriations for Open Accounts:

No. 23	Journal		$8250.000	
	(*a*) Publication	$7000.00		
	(*b*) Clerical Expenses	800.00		
	(*c*) Postage and Stationery	300.00		
	(*d*) Freight, Drayage, Miscellaneous	150.00		
No. 24	National Formulary		1000.00	
No. 25	Badges and Bars		50.00	
No. 26	Certificates		50.00	
			$9350.00	
				9350.00
				$23888.50

Motion No. 16. Election of active members Nos. 97 to 115 inclusive. Carried.

Motion No. 17. Election of S. and S. Members Nos. 191 to 229 inclusive. Carried.

Motion No. 18. That the suggestion of a textbook on commercial pharmacy, made by Prof. E. Fullerton Cook, be referred to the Executive Committee for consideration and report to the Council. Carried.

Motion No. 19. Election of S. and S. Members Nos. 23 to 279 inclusive. Carried.

Motion No. 20. Election of Active Members Nos. 116 to 127 inclusive. Carried.

Motion No. 21. Election of S. and S. Members Nos. 280 to 317 inclusive. Carried.

Motion No. 22. Election of S. and S. Members Nos. 318 to 347 inclusive. Carried.

Motion No. 23. That a further appropriation of $500 be granted the World War Veterans Section to carry on its membership campaign. Carried.

Motion No. 24. Election of Active Members Nos. 128 to 159 inclusive. Carried.

Motion No. 25. Election of S. and S. Members Nos. 348 to 363 inclusive. Carried.

Motion No. 26. Election of Active Members Nos. 160 to 163 and 164 to 173 inclusive. Carried.

Motion No. 27. Election of S. and S. Members Nos. 364 to 442 inclusive. Carried.

Motion No. 28. Election of Active Members Nos. 174 to 187 inclusive. Carried.

Motion No. 29. Election of S. and S. Members Nos. 443 to 508 inclusive. Carried.

Motion No. 30. That additional appropriations for 1919 of $624.29 for Year Book, $1596.59 for National Formulary and $1006.65 for JOURNAL be made. Carried.

Motion No. 31. That the thanks of the American Pharmaceutical Association be tendered to Mr. J. H. Maiden, of Sydney, Australia, for his generous contribution of books to the Association. Carried.

Motion No. 32. Election of Active Members No. 163 and Nos. 188 to 201 inclusive. Carried.

Motion No. 33. Election of S. and S. Members Nos. 509 to 587 inclusive. Carried.

Motion No. 34. Election of Active Members Nos. 202 to 213 inclusive. Carried.

Motion No. 35. Election of S. and S. Members Nos. 588 to 636 inclusive. Carried.

Motion No. 36. That the President shall not be limited in the selection of subjects for his annual address to scientific facts and events of the year, but shall be given the alternative of discussing questions bearing on the affairs of the Association generally, and that Chapter II, Article IX of the by-laws of the Association be so amended. Carried.

Motion No. 37. That the question of making the ex-presidents of the Association ex-officio members of the Council be referred by the Council to the Association, and if agreed upon, that the by-laws be amended accordingly. Carried.

Motion No. 38. That the Executive Committee outline each year special problems for the State Associations and the Local Branches to discuss and take appropriate action; members of the Executive Committee to submit topics, which will be submitted by the Secretary of the Committee to its members for selection by vote. The selected list is then to be sent to the President and Secretary of each State Association and Local Branch, these officers to be asked to report on the action taken in relation thereto. Carried.

Motion No. 39. That inasmuch as there is now a special Committee on Nominations appointed by the Association, that there be referred to this committee all recommendations relative to the matter of nominating and electing officers. Carried.

Motion No. 40. The Executive Committee recommended that "the annual dues be increased from $5.00 to $7.50 and that the by-laws of the Association be amended accordingly," but it was felt by the Council that the recommendation should be more thoroughly discussed than could be done by correspondence and it was, therefore, agreed (Motion No. 40) that the recommendation be made the special order of business at the first Council meeting of the annual meeting to be held in May next.

Motion No. 41. The Executive Committee recommended that "beginning with 1921 a rebate or share of the annual dues be made each year to each Local Branch of one dollar per dues-paid member per year, with the maximum of $200 for any one branch, and that the Secretary of each Local Branch shall file with the Treasurer of the Association before December the first of each year a statement of the amount of such rebate due, with a list of the membership of the Local Branch, also, that, beginning with 1921, the Association shall discontinue the custom of granting a commission of one dollar for each new member secured by Local Branches."

Motion No. 41. On motion it was agreed that the proposed restriction for rebate of annual dues to Local Branches be removed with the understanding that such commission be given only if the annual dues are increased by the Association to $7.50 a year.

Motion No. 42. That the issuance of certificates of membership except to life members be discontinued and that the by-laws be amended accordingly. Carried.

Motion No. 43. That some definite space be given in the JOURNAL to the consideration of proper commercial subjects and that the question be referred to the Committee on Publication for final action. Carried.

Motion No. 44. That the Treasurer continue to submit an annual report in full detail to the Association, and that this report be published in the Year Book, but that a summary only of the report be published in the JOURNAL.

Motion No. 45. In Council Letter No. 25, it was moved "that the Council refer the matter of an American Research Endowment to the A. Ph. A. Committee on Research with a request that said committee take up the matter immediately as a part of its present aim of securing co-operation through the medium of its proposed National Committee on Pharmaceutical Research."

In Council Letter No. 26, a substitute motion (Motion No. 45) was made and carried: "That the Council of the American Pharmaceutical Association approve the plan proposed by the Executive Committee for the formation of an American Pharmaceutical Research endowment and that it instruct the Committee on Research of the A. Ph. A. to immediately take up the proposed plan for such endowment with the various national pharmaceutical, drug and chemical organizations, and that it be considered as a part of the duty of this Committee to perfect the organization, if possible, of such a Research Endowment."

Motion No. 46. That the Committee on Local Branches be instructed to prepare amendments to Chapter XIII of the by-laws of the Association and submit the same to the annual meeting in May next. The said amendments to provide for: (*a*) The districting of the country providing for a definite territory for each Branch; (*b*) a minimum number of meetings to be held during the association year; (*c*) an annual report to be rendered at the annual meeting of the parent body; (*d*) such other details as may be necessary to obtain the greatest possible return for the money spent by the parent organization. Carried.

Motion No. 47. That the petition for the organization of a Nebraska Branch be approved. Carried.

Motion No. 48. That the action proposed by George M. Beringer in Council Letter No. 30 relative to change of classification of pharmacists as retail liquor dealers, addressed to the Executive Committee, be approved, and that the Chairman of the Council be authorized to name a special committee of three with power to act and with power to add to its number if desired. Carried.

Motion No. 49. Election of Active Members Nos. 214 to 235 inclusive. Carried.

Motion No. 50. Election of S. and S. Members Nos. 637 to 666 inclusive. Carried.

Motion No. 51. That $50 be appropriated to the Emergency Fund of the Drug Trade Board of Public Information. Carried.

Motion No. 52. That the Council call the attention of the Bureau of Internal Revenue to the present inappropriate status of analytical chemists under Regulations No. 35 for the enforcement of the Harrison Law, setting forth the reasons for this, and that a modification of these regulations be made, placing analytical chemists in the same class as physicians and other practitioners. Carried.

Motion No. 53. Election of Active Members Nos. 236 to 250 inclusive. Carried.

Motion No. 54. Election of S. and S. Members Nos. 667 to 669 inclusive. Carried.

Motion No. 55. That the Program for the 1920 Annual Meeting as finally revised be approved. Carried.

Motion No. 56. Election of S. and S. Members Nos. 670 to 789 inclusive. Carried.

Motion No. 57. Election of S. and S. Members Nos. 790 to 1558 inclusive (omitting duplicates Nos. 973, 986 and 1371). Carried.

Motion No. 58. Election of Active Members Nos. 251 to 315 inclusive. Carried.

Motion No. 59. Election of S. and S. Members Nos. 1559 to 1590 inclusive. Carried.

The report of the Committee on Publication was presented and approved. It was as follows:

TO THE MEMBERS OF THE COUNCIL:

The Committee on Publication submits the following report:

Expenditures for the Journal: The total expenditures for the JOURNAL in 1919, for publication, etc., were $7635.80, which with the editor's salary totalled $11,385.80; the total expenditures for the previous year were $10,152.31 ($6402.31 plus $3750.00), an increase of $1233.49.

Receipts of the Journal: The total receipts of the JOURNAL in 1919 from advertisements, etc., were $6114.69, and for the previous year were $5220.54, an increase of $894.15.

Net Cost of the Journal: In 1919 the net cost of the JOURNAL was $5271.11; in 1918 it was $4941.77, or an increase for 1919 of $393.34.

Printing of the Journal for 1920: The contract for printing of the JOURNAL for 1920 was continued with the Eschenbach Printing Co., of Easton, Pa., on October 21, 1919, at an increase of 20 percent over the rates of the 1917–18 contract, equivalent to a 12 percent increase over the 1919 figures.

Year Book for 1918 (Vol. 7): The contract for printing the Year Book for 1918 was awarded to the Eschenbach Printing Co., of Easton, Pa., on October 9, 1918, at an advance of 30 percent over the rates of the 1917–18 contract, equivalent to a 10 percent increase over the 1919 figures.

Net Cost of Journal and Year Book: On the basis of 2800 members—the average number for 1919—the JOURNAL issued in 1919 cost the Association (net) about $2.00 per member per year, and the Year Book cost about $1.75 per member per year, so both JOURNAL and Year Book cost about $3.75 per member per year, not including the general cost for "overhead."

Increased Printing Costs: The cost of printing the JOURNAL in 1918 was $5645.96, in 1919 was $6738.64, and in 1920 will be, probably, $8500, an increase of about $3000 since 1918.

The cost of printing the Year Book issued in 1918 (1916, Vol. 5) was $3575.98, in 1919 (1917, Vol. 6) was $3624.29, and in 1920 (1918, Vol. 7) will be, probably, $4000, an increase of about $500 since 1918.

And it is pleasing to state that this increased cost of $3500 has been (or rather will be) covered to the extent of $2500 by increased advertising, credit for which is due chiefly to Editor Eberle.

Printing Conditions: The printing conditions of the country as regards costs are in a state of demoralization. During the past two years, the costs of composition, paper and press work, etc., have advanced by leaps and bounds, in some cases exceeding 50 percent, until today no one can tell what the future is going to bring forth. Not only this, but there has been a greatly decreased production for the same number of hours.

The 1918 Year Book has not yet been distributed. Under date of April 21, 1920, the Eschenbach Printing Co. writes as follows:

"We are trying with all energy possible to issue the 1918 Year Book before your annual meeting. It is all printed with the exception of the membership list and the index. The proofs of these are going away this week, and as soon as they are returned they will be printed. I have almost given up hope, however, of getting the book out before the meeting, but it will positively be mailed during May."

Apparently, there is no indication of any reaction in prices; there is every indication of still higher prices.

In this connection, your Committee on Publication wishes to express appreciation of the services of the Eschenbach Printing Co. to the Association. The advanced prices asked by this company have been fair and reasonable, and while the delivery of the publications has not been as prompt as wished, we believe that the company has done everything in its power to give as prompt delivery as possible under exceedingly untoward conditions.

Condensing Copy for Journal: In these days when every page of the JOURNAL costs dollars, the Editor should be given the largest liberty of action to curtail copy, abstract and condense, and to this principle we feel certain that the Council will agree. Dr. E. L. Newcomb writes: "I understand that the American Magazine and one or two others may suspend publication altogether for the summer months on account of paper shortage and high prices."

Advertising Rates of Journal: In view of the fact that the advertising rates of the JOURNAL have never been raised since the JOURNAL was established in 1911, and that printing costs have very materially advanced since then, your Committee on Publication felt that, in the interest of the Association, a reasonable part of the increased cost of the JOURNAL should be passed to the

advertisers, and hence, raised the advertising rates beginning with January, 1920. It is pleasing to state that the advertisers recognized the justice of the increase and graciously acceded to it; and we trust that our members will show their appreciation of this generous attitude in a practical manner.

Department of Commercial Interests: In Council Letter No. 27, Prof. E. Fullerton Cook moved that "some definite space be given in the JOURNAL to proper commercial subjects;" the motion was carried and the question referred to the Committee on Publication for final action. In accordance therewith there has been established in the JOURNAL, beginning with the April (1920) issue, a Department of Commercial Interests, and we have been fortunate in securing the services of Dr. Robert P. Fischelis to conduct the department. In view of the importance of legitimate commercialism in the practice of pharmacy to-day, and the widespread interest of pharmacists in the subject, it is felt that this innovation is most timely and will prove to be exceedingly valuable to the membership.

Bibliography of Pharmaceutical Research of Journal: At the third session of the Council for 1918–19, of August 27, 1919, Prof. R. W. Terry suggested the desirability of giving in the JOURNAL a "bibliography of pharmaceutical literature" and the subject was referred to the Committee on Publication with a favorable recommendation. In accordance therewith there has been established in the JOURNAL, beginning with the February (1920) issue, a "Bibliography of Pharmaceutical Research," and it is pleasing to state that Prof. H. V. Arny, Reporter on the Progress of Pharmacy, and Chairman of the Committee on Research, has most kindly consented to conduct this department.

Your committee believes that the establishment of such a department in the JOURNAL is preferable to the establishment of a new monthly pharmaceutical abstract journal, as has been proposed, for a number of reasons: By means of the bibliography, the titles of articles on pharmaceutical research can be noted, month by month, and the originals promptly referred to; and by means of the Year Book, with its "annual, systematic review, or digest of pharmaceutical progress, in orderly, logical sequence, fully and completely," the membership can be informed on the general progress of pharmaceutical research, as a whole, and at a minimum cost to the Association, a most important factor in these days of abnormal printing costs.

Future Policy of Journal: At the fourth session of the Council for 1918–19 held August 28, 1919, the question of the future policy of the JOURNAL was discussed, and on motion, the subject was referred to "a special committee of three to be appointed by the incoming President of the Association, to act in conjunction with the Committee on Publication, as a joint committee, to consider the suggestions proposed, with power to act." The joint committee will report later.

National Formulary: During 1919, 3595 copies of the National Formulary IV were sold, yielding $6085.62. The stock on hand on December 31, 1919, was 1873 books (1584 muslin, 148 buckram and 141 interleaved). The total sales of the fourth edition up to December 1, 1919, have been 29,123, the first copy having been sold on July 25, 1916. The General Secretary will present in his annual report a statement of the distribution of the book, and the Treasurer in his report a statement of the receipts and expenditures.

J. W. ENGLAND, *Chairman of Committee on Publication.*

May 4, 1920.

The Report of the Editor was presented and approved. It was as follows:

REPORT OF THE EDITOR OF THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION. TO THE MEMBERS OF THE COUNCIL:

In a recent issue of a pharmaceutical publication a writer stated that "the American Pharmaceutical Association is one pharmaceutical society to which every reputable individual in America, who is even remotely interested in or connected with pharmacy, may belong."

Beginning on page 53 of the Proceedings of the American Conference of Pharmaceutical Faculties will be found a report of a Committee to consider and report on the question of two classes of pharmacists and corresponding courses in the colleges of pharmacy. A like report was made before the American Pharmaceutical Association.

On page 6 of the January issue of the JOURNAL A. PH. A. there is an editorial by the Chairman of the Publication Committee, Mr. J. W. England, in which he refers to the diversified interests in the Association that must be served by the JOURNAL, and makes this significant statement: "The JOURNAL is a coöperative enterprise, and it is just what the members choose

to make it." He also quotes from the first editorial of the first issue of the JOURNAL by our first editor, Dr. J. H. Beal: "The JOURNAL is not an object, but an instrument. The American Pharmaceutical Association does not exist for the purpose of producing this publication, but the latter has been brought into existence to serve the necessities of the Association. **** In fine, the JOURNAL will be satisfied to be, and remain, the official organ of the Association, and the first and last test that will be applied to any proposed policy or utterance will be its ability to serve the welfare of the Association and the cause for which it labors."

In the April JOURNAL a number of letters on the subject of the JOURNAL are printed. This issue has so recently reached the members that it is unnecessary to quote at length from them unless for interpretations of presentations in this report. What has been said in the foregoing conforms with the general acceptance that the Association members have different views and pursue their calling in accordance therewith as far as possible. This is also evidenced by the different Sections of the Association. The JOURNAL must serve these varied interests and is largely shaped by the contributions of the annual conventions, while coöperating with the bodies that hold their annual meetings at the same time with the American Pharmaceutical Association. In other words, the contributions are the indicators for the make-up of each issue of the JOURNAL.

The suggestion has been made that all scientific papers should be printed in consecutive issues, commercial subjects in another, etc., but the majority ask for articles in each issue one or the other of which will interest every member, if this is possible. Some have suggested a rearrangement of the departments, largely reversing the present order; this was the plan for a number of years, but the preference was for the present arrangement, and as far as the editor knows, is now preferred by the majority of readers. Certainly to change back and forth is not a wise policy, and most of the pharmaceutical publications place their text matter as we do.

Some have expressed their appreciation of the condensation of the minutes of the General Sessions and Sections; a few seem to differ. The fact must not be lost sight of that the JOURNAL is the official organ of the Association, and the proceedings of this body must be printed therein in order to be a permanent record for the members. The Editor has condensed and abstracted reports which in that form were submitted to the reporters before publication. In one instance following such action on an important and lengthy report, appreciation was expressed conveying thanks of the author and an acknowledgment that this condensation had required considerable time on the part of the abstractor. The discussions are invariably condensed, and the approval of the speakers obtained whenever deemed necessary. No one can realize the necessity for due consideration of these matters more than this reporter, nor does he credit any one with a higher regard for the rights of others and every member of the Association. It needs no further comment to impress the impossibility of pleasing everybody at all times, however much this would please him. The valuation placed on papers, discussions, reports, etc., must differ; that there may be errors is not questioned, but it is hoped the desire of the Editor to be impartial, and to serve the best interests of the Association, as he recognizes them, will be admitted. The fact that one of the chief aims of the Association is to encourage and advance professional pharmacy must not be overlooked. Whether those who have achieved, and have given much time and service to the Association, desire recognition or not, such notice is due them and of value to the Association.

At the New York meeting a number of adaptable suggestions were made for the development of the JOURNAL's usefulness; among them, an extension of the editorial notes, personal and news items; inclusion of a bibliography of pharmaceutical research, conducted by the Reporter on the Progress of Pharmacy; abstracts of the contributions listed in the bibliography can be obtained, if anyone desires them, before they are printed in the Year Book. Information is the beginning and the goal of research, and the researcher must have reference to the literature on work that is engaging him. More recently the Department of Commercial Interests has been established, and is in charge of Dr. Robert P. Fischelis; its worth will be proven.

While some work has been done for those directly interested in the War Veterans Section, more is contemplated and will soon be made effective. At least one copy of the JOURNAL has been sent to every member elected up to about a month ago, and the Editor awaits action by the Association whereby our official organ will be a more frequent visitor, and it is hoped a permanent department will be assigned to them in the JOURNAL for the inclusion of news and

other matter of particular interest for them. Through the efficiency of the officers of the Section, of which R. P. Fischelis is Chairman, and Captain W. D. Walters, Secretary, aided by Frank H. Freericks, the A. Ph. A. Branches, State Membership Committees, the pharmaceutical publications of the country, and the JOURNAL, more than 2000 names have been added to the roll of membership.

The efforts of the JOURNAL are evident in preliminary revision work of the U. S. Pharmacopoeia, the National Formulary and Pharmaceutical Syllabus. It is hoped that the publication of Unofficial Formulas will be continued.

Tentative promises have been received for the conduct of the department relating to legislation. Editorials from a number of contributors have appeared in the JOURNAL, and it is hoped to extend this list; the suggestion is now made, that during their incumbency of office the president of the Association, other officers and each chairman of a Section, the presidents of the American Conference of Pharmaceutical Faculties and of the National Association of Boards of Pharmacy, and the chairmen of the U. S. P. and N. F. Revision Committees, be invited to contribute editorials. Only for the purpose of preventing misinterpretation of the foregoing, it is said that the JOURNAL is at and for the service of all members.

Further extension of personal items is desired by some. The JOURNAL throughout speaks of the activities of the members, the best possible publicity that can be given, namely, by the contribution of service, of reports and papers. More of this would be included if it was not imperative to print official business of the Association. Secretary England has lately omitted the names of recommenders of applicants for membership; the lists presented in the last two Council Letters, omitting these names, will require twelve or more pages. The April number has 14 pages of Council Business and still only presents the transactions up to March 17. If the discussions relating to motions could be condensed or omitted it would make possible the inclusion of more papers.

This has been a short year, and carried with it some inconveniences that do not obtain ordinarily. In this, Section officers will bear me out, they knowing the difficulties of preparing their programs for this meeting. Every effort was made to dispose of all matter presented at the New York meeting before the time of the present convention, and it is hoped that the May issue will finish this work.

The steady advance in the price of paper and publication costs has added to the expenses of the JOURNAL; not so, however, with those over which the Association has control. The Publication Committee in 1915 reported that the total receipts of the JOURNAL for the year were $3,864,89; for the first four months of this year they are $2,826.14, giving a reasonable assurance, providing this ratio is maintained, of a total income for this year of more than $8,000.00; and, if so, hen the receipts of the JOURNAL will have doubled in five years.

The following comparison of receipts and expenses for 1918 and 1919 is made: The total receipts of 1918 were $5220.54–$4547.24 from advertising, $309.50 from subscriptions and sale of single copies, $259.75 from reprints, $4.05 from type cuts. The total receipts for 1919 were $6114.69, an increase of $894.15 over 1918; of this $5,229.50 came from advertising, $385.70 from subscriptions and sale of single copies and bound volumes, $507.24 from reprints, $2.25 from type cuts. In the consideration of both years the JOURNAL subscriptions of members are not entered as income.

The total expenses of the JOURNAL for 1919, exclusive of the Editor's salary, were $6,402.31, of which publication costs were $5,337.74, including also engravings, mailing of the JOURNAL, express and freight, and binding; reprints cost $308.22; clerical expense $548.85; office postage, $152.29; stationery and office supplies, $55.61. The total expenses for 1919 were $7,635.80, of which publication costs were $6,306.33, including also engravings, mailing of the JOURNAL, express and freight, and binding; reprints cost $432.31; clerical expense, $670.20; office postage, $179.22; stationery and office supplies, $47.74. Th cost of mailing the JOURNAL increased $35.07, which means that more journals were mailed, corresponding with increased membership; the increased cost of publication is also to some extent due to this. The clerical expense increased $121.75; the office postage and stationery supply account increased $29.06.

So while our receipts were increased in 1919 by $894.15, our expenses increased $1,233.49, or net $339.34, not a very bad showing when H. C. L. conditions are considered and that our membership has increased and more journals are sent out. Itemized accounts of receipts and

expenditures are submitted. The receipts are given month by month, an annual report and in schedule. The same for expenditures, and there is a voucher for each item of expense.

The amount of text matter in an annual volume of the JOURNAL will convince those familiar with this kind of work that with the necessary correspondence and other essential clerical duties there is much to do during the year; this is made lighter by the quite general approba ion of the readers. Members could extend some assistance by encouraging the patrons of the advertising pages of the JOURNAL, and persuading patronage from others. An occasional word of appreciation to the former convinces them of the value of our publication as an advertising medium, and to speak of it to others in that connection aids your representative in securing further business. If the receipts were increased by this means to what they really should be, the need of discussing higher dues would be unnecessary and the usefulness of the JOURNAL would be extended.

The editor has endeavored to serve you to the best of his ability, and he hopes these services have your approval. He thanks the members of the Publication Committee and the Special Committee appointed by President Sayre for their helpful coöperation, and also everyone who has given assistance and encouragement. While he realizes that the printing of the JOURNAL is a business proposition, as far as the publishers are concerned, it should be stated that they have taken an interest in its preparation.

With deep appreciation of the confidence reposed by the members, and expression of high regard for the membership.

Respectfully submitted,

E. G. EBERLE, *Editor.*

The recommendation of the Executive Committee to the Council, "that the annual dues of the Association be increased from $5.00 to $7.50 and that the by-laws of the Association be amended accordingly," which was directed to be made, under Motion No. 40, the special order of business at the second session, was presented.

On motion of G. M. Beringer, seconded by F. J. Wulling, the consideration of the subject was postponed until the next Council meeting and it was agreed, also, that when the Council adjourns, it adjourns to meet on Friday, May 7, 1920, at 9 A.M.

Treasurer H. M. Whelpley presented the annual report of the Treasurer for 1919–20. He recommended that the Editor of the JOURNAL be instructed to discontinue the sending of the JOURNAL to all members who are delinquent as of July 1 of each year.

On motion of J. H. Beal, seconded by E. G. Eberle, the report was received and the recommendation adopted.

Local Secretary Hilton asked that certain proposed changes in the Program for the Sixty-eighth annual meeting be made, which was agreed to.

Adjourned until Friday, May 7, 1920, at 9 A.M.

J. W. ENGLAND, *Secretary.*

THIRD SESSION OF THE COUNCIL.

The third session of the Council for 1919–20 was held at the Willard Hotel, Washington, D. C., on Friday, May 7, 1920, at 9 A.M.

Chairman L. C. Hopp presided.

Present: Messrs. H. V. Arny, J. H. Beal, G. M. Beringer, W. B. Day, Jacob Diner, Clair A. Dye, E. G. Eberle, J. W. England, H. C. Fuller, J. G. Godding, S. L. Hilton, L. C. Hopp, Jeannot Hostmann, E. F. Kelly, C. H. LaWall, R. D. Lyman, C. A. Mayo, W. F. Rudd, E. A. Ruddiman, L. E. Sayre, L. A. Seltzer, F. E. Stewart and H. M. Whelpley.

The reading of the minutes of the previous meeting was dispensed with.

The consideration of the special order of business of the previous session, *i. e.*, the proposed increase of annual dues, was again taken up.

Dr. James H. Beal moved, seconded by W. B. Day, that the recommendation of the Executive Committee of February 16, 1920, to the Council "that the annual dues be increased from $5.00 to $7.50 and that the by-laws of the Association be amended accordingly," be amended so as to retain the annual dues at $5.00 without the Year Book, and at $7.50 with the Year Book, it being optional with members to choose either procedure; the fiscal year to begin with 1921.

An extended discussion was had on the subject from almost every angle.

No decision was reached and adjournment was had to reconvene in the evening at 7 P.M.

J. W. ENGLAND, *Secretary.*

At 7 P.M., the third session of the Council was reconvened, Chairman L. C. Hopp in the chair.

Applications for active membership Nos. 494 to 524 inclusive were presented and favorably acted upon. The list was:

No. 494, Joseph W. Noble, 22nd and Morris Sts., Phila., Pa. No. 495, Emmett L. Murray, Americus, Ga. No. 496, Bruce Edson Clarke, 115 Benton Blvd., Kansas City, Mo. No. 497, William M. Norton, 49 Pleasant St., Portsmouth, N. H. No. 498, Camille Joseph Robert, 629 Brock Ave., New Bedford, Mass. No. 499, William Marks, 664 Brock Ave., New Bedford, Mass. No. 500, Rymar Voorhees Brokaw, 402 Delaware St., Hiawatha, Kans. No. 501, Daniel L. Jacobs, 269 S. Pitt St., Carlisle, Pa. No. 502, Lewis Good Freeman, 1644 Allengrove St., Phila., Pa. No. 503, Howard Werstler Detweiler, Jr., 446 Beech St., Pottstown, Pa. No. 504, W. S. Dick, 804 La. St., Lawrence, Kans. No. 505, Hugo O. Peterson, 1501 Wash. Ave. So., Minneapolis, Minn. No. 506, Oscar D. Darr, cr. Central Pharmacy, Roanoke, Va. No. 507, Leo Rosenthal, 504 N. 5th St., Richmond, Va. No. 508, Peter E. Darden, Newsoms, Va. No. 509, Mason Powhatan Kelly, Culpeper, Va. No. 510, George Wm. Sylefu, Radford, Va. No. 511, Alexander Woodford Broaddus, 623 N. 25th St., Richmond, Va. No. 512, D'Wilt Clinton Bowman, 919 Main St., Fredericksburg, Va. No. 513, Robert Vance Gilkeson, 300 E. Main St., Richmond, Va. No. 514, Gordon Blair, 829 E. Broad St., Richmond, Va. No. 515, Ernest George Johann, 827 W. Main St., Richmond, Va. No. 516, R. Carlisle Gilliam, Chuckatuck, Va. No. 517, Samuel Curtis Creasy, Sr., 314 54th St., Newport News, Va. No. 518, John T. Worsham, 509 N. Meadow St., Richmond, Va. No. 519, R. C. Parsons, cr. Pennington Pharmacy, Pennington Gap, Va. No. 520, Labon C. Cochrane, 74 Bdwy., Fargo, N. D. No. 521, Bruce Cruse, 74 Broadway, Fargo, N. D. No. 522, Henry H. Casselman, 406 Broadway, Fargo, N. D. No. 523, Richard H. Puhl, 608 Front St., Fargo, N. D. No. 524, Phil R. Ihlson, 10 Broadway, Fargo, N. D.

Applications for soldier and sailor membership Nos. 2074 to 2081 inclusive were presented and favorably acted upon.

Discussion was had on the motion for increase of dues.

On motion of G. M. Beringer, seconded by C. H. LaWall, the motion was laid on the table.

G. M. Beringer moved, seconded by L. E. Sayre, that the recommendation of the Executive Committee on the subject of increase of annual dues be approved.

On motion of H. M. Whelpley, seconded by W. F. Rudd, the motion was laid on the table.

On motion of H. V. Arny, seconded by C. H. LaWall, it was agreed that a committee of three of the Council be appointed by the Chairman to formulate a referendum to be sent to the members of the Association with the annual ballot asking, for the guidance of the Council, the wishes of the membership on the question of the issuance or non-issuance of the Year Book and the increase or non-increase of the annual dues.

W. L. Scoville, Chairman of the Committee on National Formulary, asked the sanction of the Council to hold a special meeting of the Committee on National Formulary to consider the policies of the National Formulary, and also, that an appropriation of not more than $1000 be made to pay the expenses of the meeting.

On motion of G. M. Beringer, seconded by E. G. Eberle, it was agreed that the Council approve the holding of the special meeting proposed.

On motion of G. M. Beringer, seconded by H. V. Arny, it was agreed that an appropriation covering the expense of the proposed meeting of not more than $1000 be favorably referred to the Committee on Finance.

A recommendation from the Section on Education and Legislation to the Council, proposing that a committee be appointed to confer with the Internal Revenue Department concerning the provisions of the Harrison Narcotic Act with especial reference to the exportation of narcotics, was presented, and on motion of W. F. Rudd, seconded by J. H. Beal, it was approved.

A communication from the World War Veterans Section was presented recommending to the Council (1) that the Section be discontinued and that a committee of seven World War Veterans of the Association be appointed by the President of the American Pharmaceutical

Association and to be known as the World War Veterans' Committee to prepare each year a survey of pharmaceutical conditions in the United States with statistics and with special reference to the availability of pharmaceutical resources for military purposes, said report to be submitted to the Surgeons-General of the U. S. Army and Navy after it has been read before one of the general sessions of the A. Ph. A. and approved.

The compilation of this report is to be supervised by the chairman of the committee.

It is further recommended that arrangements be made by the Association to refer all matters pertaining to war veteran activities to this committee and that this committee be permitted to recommend various features of interest to war veterans and the members of the Association as a whole for inclusion in the programme of the general sessions of the Association.

On motion of H. V. Arny, seconded by Jeannot Hostmann, the recommendations were approved.

The following report of the Reporter on the Progress of Pharmacy was presented by Reporter Arny:

REPORT OF THE REPORTER ON THE PROGRESS OF PHARMACY.

Your Reporter begs to submit the following outline of his work of the association year that is just closing.

The manuscript for the 1918 Year Book was finished Sept. 5, 1919, the Publication Committee was notified and negotiations as to printing were finally settled so that the material was sent to the printer on Nov. 20.

The last galley proofs were read and returned on March 4, 1920. The indices, both general and of authors, were sent to the printer on April 8, 1920 and proofs of the indices were received and returned on April 27, 1920. The finished volume should appear in the near future.

Since January first, your Reporter has had the unusual experience of working on the Year Books of three consecutive years at one time. He has read the proofs of the 1918 Year Book, he has been actively engaged in the preparation of the 1919 manuscript and he has been indexing material found in the 1920 journals for immediate use in the Bibliography of Pharmaceutical Research now featured in each issue of the JOURNAL and which will also serve as the Index of Authors in the 1920 Year Book. This latter work has caused some delay in the completion of the manuscript of the 1919 Year Book but is not actual loss of time since the work of preparing the 1920 Year Book is expedited by the preparation of the Bibliography.

As to the 1919 manuscript it is at this time about as far advanced as the 1918 manuscript was when we met last year in New York. All abstracts are now completed save a few special ones that are now being prepared by the Reporter and unless something unforeseen occurs, the manuscript should be ready for the printer within a month, and if something can be done to speed the printing, the Year Book will be issued during the current year and we can then consider that it has caught up to its schedule.

The 1915 Year Book contained 412 pages of abstracts; the 1916 issue contained 426 pages; the 1917 Year Book contained 498 pages, while the 1918 Year Book contained 557 pages. This shows that despite the efforts of the Reporter to keep the book down to a reasonable size, each year more material is being added; the 1918 volume being almost as large as the volume of 1914 (651 pages). This is due to the fact that more journals are now available and a more comprehensive survey of the field of pharmaceutical literature is being furnished. How to increase the broadness of the scope of the Year Book without greatly increasing the number of its pages is a distinct problem. Up to now your Reporter has been condensing the abstracts but the pruning cannot be carried too far. Suggestions in this direction from the members will be appreciated.

Respectfully submitted,

H. V. ARNY.

On motion of W. B. Day, seconded by H. M. Whelpley, the report was received and approved.

The Report of the Committee on Revision of Constitution and By-Laws was presented by Chairman J. H. Beal and referred to the general session.

Adjourned until Saturday, May 8, 1920 at 8 P.M.

J. W. ENGLAND, *Secretary*.

FOURTH SESSION OF THE COUNCIL.

The fourth session of the Council for 1919–20 was held at the Willard Hotel, Washington, D. C., on Saturday, May 8, 1920, at 8 P.M., Chairman L. C. Hopp presiding.

Present: Messrs. G. M. Beringer, Chas. E. Caspari, W. B. Day, Clair A. Dye, E. G. Eberle, F. R. Eldred, J. W. England, R. P. Fischelis, J. G. Godding, Lewis C. Hopp, Jeannot Hostmann, R. D. Lyman, Caswell A. Mayo, W. O. Richtmann, W. F. Rudd, E. A. Ruddiman, L. E. Sayre, L. A. Seltzer and Clyde M. Snow.

The reading of the minutes of the previous meeting was dispensed with.

Applications for active membership Nos. 525 to 532 inclusive were presented and favorably acted upon. The list was:

No. 525, F. W. Brown, 6423 So. Whipple St., Chicago, Ill. No. 526, W. D. Lacey, Jefferson and Fulton Sts., Peoria, Ill. No. 527, Philip A. Guerrieri, 1035 Grand Ave., Chicago, Ill. No. 528, Henry C. Eckart, 3201 Armitage Ave., Chicago, Ill. No. 529, William H. Mahler, 124 West Park Ave., Elmhurst, Ill. No. 530, F. W. Kisker, 7th and Vine Sts., cr. Dow's, Cincinnati, Ohio. No. 531, Frank L. Shaffer, Maudan, N. D. No. 532, Richard Gwathmey, 8 No. 14th St., Richmond, Va.

Applications for soldier and sailor membership from No. 2082 to 2085 inclusive were presented and favorably acted upon.

The report of the Committee on Research was presented. It was as follows:

REPORT OF THE COMMITTEE ON RESEARCH.

Your Committee on Research conducted business since the New York meeting through the medium of three bulletins and at a meeting held in Washington on May 6th. At this meeting all of the members of the Committee were present except Dr. Kraemer and in addition Dr. Schneider, Chairman of the Research Committee of the Conference of Faculties and Dr. Francis of the National Research Council were present on invitation of the Committee.

The first business taken up was the consideration of applications for grants from the monies available from the A. Ph. A. fund, which for the year 1920–1921 will amount to $450. In this matter your Committee recommends that the following grants be made:

To Dr. Heber W. Youngken, for "A Comparative Study of the Micr[illegible]v and Alkaloidal Constituents of the Roots of Several Species of Aconitum," $200.00.

To Dr. E. Kremers, for work to be performed by Miss Lida Winkelblech [illegible]liacol and its Derivatives," $250.00.

The next business transacted was consideration of the following resolution of the Council:

> *Resolved:* That the Council of the American Pharmaceutical Association approve the plan proposed by the Executive Committee for the formation of an American Pharmaceutical Research Endowment and that it instruct the Committee on Research of the A. Ph. A. to immediately take up the proposed plan for such an endowment with the various national pharmaceutical, drug trade and chemical organizations, and that it be considered as a part of the duty of this Committee to perfect the organization, if possible, of such a Research Endowment.

After a discussion a motion was put and carried directing the chairman of your committee to take steps to organize a national committee on pharmaceutical research consisting of one representative from each national pharmaceutical association interested in research including the United States Pharmacopoeial Convention. It is understood that this preliminary work will occupy the time between now and the next meeting of the A. Ph. A. at which time your committee will report results of their endeavors.

Dr. Albert Schneider then presented in outline his plan for the creation of an American Council of Pharmaceutical Research, which had been approved by the Conference of Faculties and had been referred by it to your committee. After a discussion of the matter a motion was put and passed directing that the plan be submitted to the proposed National Committee on Pharmaceutical Research when such committee is organized.

Dr. J. M. Francis then discussed with your committee the possibilities of coöperation of investigators in pharmaceutical chemistry with the National Research Council. While no definite action was taken, it was the consensus of opinion that it was desirable to organize a national

committee on pharmaceutical research prior to approaching the National Research Council on the matter of affiliation.

In conclusion may your committee summarize its recommendations to the Council:

1. That grants be made to Drs. Youngken and Kremers as described above.

2. That we consider the first step toward broadening the scope and stimulating growth of pharmaceutical research in the formation of a national committee on pharmaceutical research. For this reason, we ask the Council to approve our plan of doing work in this direction during the coming year.

Respectfully submitted,

H. V. ARNY,
H. M. WHELPLEY,
CHARLES H. LAWALL,
GEORGE M. BERINGER.

On motion of C. E. Caspari, seconded by E. G. Eberle, the first recommendation of the committee was adopted.

On motion of Jeannot Hostmann, seconded by F. W. Nitardy, the second recommendation of the committee was adopted.

The report of the Pharmaceutical Syllabus Committee was received. It was as follows:

REPORT OF THE PHARMACEUTICAL SYLLABUS COMMITTEE, MAY, 1920.

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION:

The Pharmaceutical Syllabus Committee respectfully submits the following report to date:

The third edition of the Syllabus should have been issued before this time but for the inevitable delays due to the war. Notwithstanding the difficulties under which the Committee has been working, much progress has been made with the work of revision and the Committee can report satisfactory progress and its confident belief that the new edition of the Syllabus will appear before the end the year.

It has been ded to include two important new sections in the new Syllabus, which should greatly e its usefulness. One of these is an outline of a third year course leading to the deg rmaceutical Chemist, and the other is a chapter on the preparation of examination questions. It is believed that this latter section will be of especial service to members of state boards of pharmacy.

The representative character of the Committee is seen from the membership, which is as follows:

From American Pharmaceutical Association: Eugene G. Eberle, Philadelphia, Pa.; Harry B. Mason, Detroit, Mich.; George M. Beringer, Camden, N. J.; Henry H. Rusby, New York, N. Y.; Willis G. Gregory, Buffalo, N. Y.; William H. Rudder, Salem, Ind.; Edwin L. Newcomb, Minneapolis, Minn.

From National Association Boards of Pharmacy: Mason C. Beebe, Burlington, Vt.; John Culley, Ogden, Utah; Ellis E. Faulkner, Delton, Mich.; Charles H. Skinner, Windsor, Vt.; Otto W. Osterlund, Philadelphia, Pa.; George W. McDuff, New Orleans, La.; George C. Diekman, New York, N. Y.

From American Conference of Pharmaceutical Faculties: William C. Anderson, Brooklyn, N. Y.; Julius A. Koch, Pittsburgh, Pa.; Theodore J. Bradley, Boston, Mass.; Clyde M. Snow, Chicago, Ill.; Albert M. Bolenbaugh, Richmond, Va.; Edsel A. Ruddiman, Nashville, Tenn.; E. Fullerton Cook, Phila., Pa.

Each of the associations represented on the Committee regularly contributes twenty-five dollars per year towards the expense of the work, and it is requested and recommended that these contributions be continued. After the second edition of the Syllabus was issued, the Committee was in debt for several hundred dollars, but this indebtedness has been paid off and a balance is now accumulating in the treasury which it is hoped will prevent a similar indebtedness when the third edition is issued.

As has been stated before, the Committee appreciates the difficulty of its task. We expect the third edition of the Syllabus to show a marked improvement over the second, which

in turn was better than the first, and this is all that can be expected in such work as this, as we can only approach, but never reach, the perfect book we strive for.

THEODORE J. BRADLEY, *Chairman, for the Committee.*

On motion of W. B. Day, seconded by Jeannot Hostmann, the request for a contribution of twenty-five dollars towards the expense of continuing the work of the Committee was granted.

Chairman Hopp named the following Committee on Formulation of Referendum on Year Book and Annual Dues: Messrs. H. V. Arny, Chairman, C. H. LaWall and James H. Beal.

An appeal for the relief of starving Austrian pharmacists, made by Hugo Kantrowitz before the first general session and referred by the Association to the Council, was considered.

W. B. Day moved, seconded by L. E. Sayre, that the Council recommend to the Association that an appeal be made to American pharmacists for contributions to relieve starving Austrian pharmacists in the pages of the JOURNAL of the American Pharmaceutical Association and that the contributions received be sent to Mr. Hugo Kantrowitz, Editor of the *Deutsche Apotheker Zeitung* of New York, for the purchase of American food drafts to be sent, in the name of the American Pharmaceutical Association, to the two pharmaceutical organizations of Vienna for distribution.

R. P. Fischelis submitted the following recommendations:

That the Council institute measures that will bring about closer affiliation between the World War Veteran members and the Association itself, as follows:

1. It is recommended that letters be sent to all S. and S. members and prospective members offering the JOURNAL of the Association for the balance of this year and for all of 1921 if they become regular dues-paying members any time between now and January 1, 1921.

2. It is recommended that an active member of the A. Ph. A. residing near Fort Leavenworth, Kans., be appointed to coöperate at once with Secretary Wm. D. Walters of the W. W. V. Section in winding up the affairs of the Section and turning over to the General Secretary of the A. Ph. A. the equipment that has been purchased by the Section.

On motion of Jeannot Hostmann, seconded by C. A. Dye, the first recommendation was adopted.

Jeannot Hostmann moved, seconded by W. B. Day, that the second recommendation be adopted. Carried.

On motion of G. M. Beringer, seconded by Jeannot Hostmann, it was agreed that in the next vote by mail for the election of officers, etc., the ballot be sent only to dues-paid active members and to life members.

Chairman Hopp announced the appointment of the following committee on federal narcotic regulations directed to be appointed by the meeting of the Council held May 7, 1920:

Messrs. C. H. LaWall, Chairman, A. W. Linton, C. W. Johnson, Cornelius Osseward and Clair A. Dye.

Chairman Hopp announced, with the approval of the Council, the appointment of the following Committee on Nominations, for Council Committees for 1920–21:

W. B. Day, Chairman, Jeannot Hostmann and E. A. Ruddiman.

On motion of L. A. Seltzer, seconded by E. G. Eberle, it was agreed that the certificates of membership for soldier and sailor members, proposed by the officers of the former World War Veterans Section, be not sent out.

Adjourned.

J. W. ENGLAND, *Secretary.*

FIFTH SESSION OF THE COUNCIL.

The fifth session of the Council for 1919–20 was held at the Willard Hotel, Washington, D. C., on Monday, May 10, 1920, at 9.15 A.M., Chairman L. C. Hopp presiding.

Present: Messrs. H. V. Arny, James H. Beal, G. M. Beringer, W. B. Day, A. R. L. Dohme, E. G. Eberle, F. R. Eldred, J. W. England, R. P. Fischelis, J. G. Godding, C. H. LaWall, R. A. Lyman, C. A. Mayo, W. O. Richtmann, W. F. Rudd, E. A. Ruddiman, L. E. Sayre, L. A. Seltzer, Clyde M. Snow, H. M. Whelpley and F. J. Wulling.

The reading of the minutes of the previous meeting was dispensed with.

The following resolution adopted by the Scientific Section on May 7, 1920, was submitted:

"*Resolved*, That the American Pharmaceutical Association place itself on record as favor-

ing the introduction into the U. S. Pharmacopoeia of physiologic assays for those drugs, chemicals and preparations for which satisfactory methods have been found."

On motion of Dr. F. E. Stewart, seconded by Jeannot Hostmann, the resolution was adopted.

The report of the Joint Special Committee on Journal and Committee on Publication was presented, as follows:

WASHINGTON, D. C., May 9, 1920.

TO THE COUNCIL:

The joint special Committee on Journal and Committee on Publication have considered the future policy of the JOURNAL as requested by the Council, and ask the adoption of the following recommendations:

1. That the Editor condense papers for publication in the JOURNAL so far as in his judgment it is deemed necessary, and publish or not publish papers in full or in abstract.

2. That the Editor condense the proceedings of the annual meetings for publication in the JOURNAL so far as in his judgment it is deemed necessary, and that these proceedings be published in the one or two issues of the JOURNAL immediately following the annual meeting.

3. That the Editor condense the Council Letters for publication in the JOURNAL, eliminating all discussions and unnecessary matter; and also, that no further Soldier and Sailor membership applications b e published in the JOURNAL.

4. That the Editor give reasonable space in the pages of the JOURNAL for matter relating to the work of the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy.

5. That the Editor may select such collaborators to assist him in the work of the JOURNAL as he may desire.

Respectfully submitted,

J. W. ENGLAND, *Chairman*,
W. F. RUDD,
W. B. DAY,
H. M. WHELPLEY,
J. A. KOCH,
G. M. BERINGER.

On motion of Dr. F. E. Stewart, seconded by E. A. Ruddiman, the report was received and the recommendations adopted.

Treasurer Whelpley asked for a special appropriation of $150 for clerical assistance in the work of his office from September 1, 1920 to September 1, 1921, and on motion of E. G. Eberle, seconded by W. B. Day, the appropriation was approved and favorably referred to the Committee on Finance.

On motion of R. P. Fischelis, seconded by Dr. F. E. Stewart, it was agreed to appropriate $150 for the work of the Drug Trade Board of Public Information for 1921, subject to the approval of the Committee on Finance.

On motion of Dr. H. M. Whelpley, seconded by W. F. Rudd, it was declared to be the sense of the Council that members of the standing and special committees of the Council need not necessarily be members of the Council.

C. A. Mayo moved, seconded by Dr. H. M. Whelpley, that the Ebert Prize Award of 1919 be formally given to the recipient at the final general session of the Association and that, in subsequent years, a similar procedure be followed.

The Report of the Soldier and Sailor Advisory Committee was presented by Chairman Frank H. Freericks, who entered a vigorous protest against the action of the Council in abolishing the World War Veterans Section.

The report was as follows:

FINAL REPORT OF THE SOLDIER AND SAILOR ADVISORY COMMITTEE TO THE COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

TO THE MEMBERS OF THE COUNCIL:

We beg now to make our final report. Since the August meeting of last year our work for a time continued to require considerable attention along the lines originally adopted. With

the beginning of the new year a reëstablishment of those who had been in the Service, out of pharmacy, seems to have been completed and inquiries have been growing constantly less until at this time they have practically ceased. We have been able to render service after the August meeting to two hundred and sixty-five men in connection with finding positions or store openings, and in connection with reciprocal registration, and to ninety-five men in connection with college admission and education. Thus the work of the Association in helping to reëstablish men out of pharmacy who have been in the Service has to a varying degree been of direct assistance to over one thousand in connection with positions, store openings and reciprocal registration, and to nearly five hundred in connection with pharmaceutical education and college opportunities. The voluntary contributions made to enable this Committee to carry on this work have amounted to a total of $2080.15, plus interest $21.91 or total of $2102.06; and the expenditures including two small items which remain to be paid by Treasurer Whelpley have amounted to a total of $1653.75, leaving a final balance of $448.31 to be paid over as Council may direct. A list of contributors to the fund of the Committee is attached hereto. The work of compiling an Honor Roll of men who have been in the Service out of pharmacy will be undertaken by the World War Veterans Section as decided at the New York meeting. Again we want to thank the various branches of the drug trade for the aid they have given this Committee, and particularly do we want to thank the colleges of pharmacy, the state boards of pharmacy and the pharmaceutical press who with few exceptions have been very generous in their assistance and coöperation.

In making this our final report we trust that brief reference to the World War Veterans Section an outgrowth of the work of this Committee will not be deemed out of place. We understand that about two thousand ex-service men have now taken advantage of the membership offer through the new section. Circumstances over which the section and its officers had no control for one reason or another caused great delay and some waste of effort in properly getting its work under way. In view of this fact and considering that the present Association Year has been less than nine months, the enrollment must certainly be regarded a pleasing and satisfactory one. There are about ten thousand men entitled to membership through the section. We are sure that the interest of the very largest part of these men can be secured by continued effort. They constitute a force and a strength both numerically and otherwise which to enlist in its work the Association never in its history has had a like opportunity to do. They are the young element in American Pharmacy which, apart from college coöperation, the Association has never been able to reach. It is an admitted fact that with some exceptions the pharmacists of the country have become and do become actively interested in the work of the A. Ph. A., and for what it stands, only after they are well settled and more advanced in years. If the average age of the Association membership might be ascertained it likely would be found to be over forty years. This means that on an average the A. Ph. A. and its influence does not effectively and intimately enter into the life of the American Pharmacist until after he has actively been engaged in pharmacy for about twenty years, and then, of course, only the smaller number are reached. Now there is a wonderful opportunity to change the regrettable conditions of the past. To actively enlist the energy and interest of these ten thousand or more young men, to be joined for their own particular good and welfare, and to at the same time come within the immediate influence of the A. Ph. A. and its ideals, means more than millions of dollars can otherwise buy or its expenditure otherwise secure. Under proper direction and with needed coöperation this can be the largest step ever taken by the Association, or ever offered to be taken by it, to make of American Pharmacy what it ought to be, and what we all hope it will be. The opportunity is presented to the Association in a particularly fortunate and happy manner. To let it pass would forever be a cause for regret. This is not a time to quibble about the expenditure of a few dollars if they are available or can be made so. In our opinion it is particularly unprofitable to point out that the Association is giving something away, when it offers membership to the men in this fruitful field without dues for the first year. Commercial enterprises will expend, in the course of years, hundreds of dollars to secure each new substantial customer, and guided by experienced business sagacity, what should not the Association be willing to do to secure so desirable a membership? The situation confronting the Association in this respect presents a problem which must be handled rightly and immediately. To tell the two thousand men who have now secured membership in the Association and the eight thousand men who still ought to secure membership, that they have been given something of value is doubtless true in our opinion, but can we

expect them to so feel about it, when they have had, and now have, no opportunity to learn it to be true? We submit that it is imperative for the success of the movement which now is so splendidly under way that each one of these new men be brought into immediate and direct touch with the Association, and primarily this can be done only through the JOURNAL. Some way must be found to furnish each Soldier and Sailor member with the JOURNAL, so long as under the rules of the Association they are not as dues paying members entitled thereto. In our opinion the Association owes this to itself and to American Pharmacy apart from immediate expectation of money return, but we would point out that expenditure now incurred will be repaid to the Association a thousandfold.

Respectfully submitted,

FRANK H. FREERICKS, *Chairman*,
EDWARD SPEASE,
H. C. CHRISTENSEN,
C. E. CASPARI.

CONTRIBUTORS TO THE A. PH. A. SOLDIER AND SAILOR FUND.

Dec. 5–April 15, 1920.

The American Druggists' Fire Insurance Co., Cincinnati, Ohio	$300.00
Charles H. Avery, Chicago, Ill.	5.00
J. H. McCloskey & Co., Fairmont, W. Va.	2.00
M. J. Lacer, Clyde, Ohio	2.00
F. W. Geimer, Maplewood, N. J.	1.00
J. L. Ormsbee, Spr ngfield, Mo.	1.00
Thomas Armstrong, Washington, D. C.	2.00
J. D. Mason, Milan, Ga.	1.00
Frank Vorch, Cleveland, Ohio	0.75
Culpepper Drug Co., Hazen, Ark.	1.00
North End Drug Co., McAlester, Okla.	2.00
Walter J. Garver, cr. Marsh & Co., Princeton, N. J.	1.00
F. J. Pittman Drug Co., Little Rock, Ark.	5.00
M. H. Webb, Simpsonville, Ky.	1.00
L. H. Ogden, Blackshear, Ga.	1.00
Caneer Drug Co., Senath, Mo.	1.00
Gerrington Drug Co., Texarkana, Tex.	1.00
Frank B. Angell, Denver, Colo.	10.00
B. H. Beatte, Woodward, Okla.	1.00
Hyde Drug Co., Malone, N. Y.	1.00
C. A. Dachsel, Memphis, Tenn.	3.00
William F. Gille, Daytona, Fla.	5.00
Crenshaw Drug Co., Crenshaw, Miss.	1.00
Pendleton Drug Co., Pendleton, Oregon	2.00
C. L. Taylor, Barry, Texas	5.00
F. J. Herbst, Milford, Pa.	2.00
J. D. Humphrey & Son, Huntsville, Ala.	2.00
R. C. Goolsby, Forsyth, Ga.	1.00
Hebberd & Co., La Crosse, Wis.	5.00
F. E. Reeder, Palatka, Fla.	1.00
Pierre C. Hyde, Fort Covington, N. Y.	1.00
E. J. Feurer, La Salle, Ill.	3.50
H. A. Finefrock, M.D., Barberton, Ohio	1.00
F. Lahmers, M.D., Barberton, Ohio	1.00
J. A. Bailey & Co., Denver, Colo.	1.00
Bryan Drug Co., Vicksburg, Miss.	1.00
R. S. Fowler, Buffalo, N. Y.	5.00
E. H. Thiesing, Cincinnati, Ohio	5.00
Thompson Drug Co., Jamaica, New York, N. Y.	5.00
A. G. Leal, San Benito, Texas	1.00
A. B. Walter, Wilkes-Barre, Pa.	2.00
A. O. Austin, Orleans, Vt.	0.25
Frank A. Tucker, Manchester, N. Y.	1.00
J. G. Hall, Oxford, N. C.	0.30
Petty's, Inc., Newark, N. J.	1.00
Walter B. Partridge, Owego, N. Y.	1.00
Hyman Nisselson, East Orange, N. J.	1.00
O. A. Johnson, Gray Eagle, Minn.	1.00
E. A. Cilley, Conklin, Mich.	1.00
E. C. Widrig, Newport, Ky.	1.00
Public Drug Co., Whitefish, Mont.	2.00
Canalon Drug Co., Canalon, Mo.	1.00
Henry Schmidt, Elizabeth, N. J.	1.00
Bowie Drug Co., Bowie, Ariz.	1.00
Arnold Drug Co., Newburn, Tenn.	1.00
Craig A. Nicholson, Va.	1.00
Walter Drug Co., Foley, Minn.	1.00
I. Sadler & Co., Gustine, Tex.	1.00
W. E. Ellicott, Rialto, Cal.	3.00
J. H. DeGiorgi, Syracuse, N. Y.	1.00
J. D. Biles, Big Spring, Texas	2.00
Vacaville Drug Co., Vacaville, Cal.	2.00
Thornton Anderson Drug Co., Murray City, Utah	2.00
C. B. Chenoweth Drug Co., Webb City, Mo.	1.00
Red Cross Pharmacy, Idaho Falls, Idaho	1.00
Dr. W. T. Bryan, Vian, Okla.	1.00
Peter Graves, Goessel, Kans.	1.00
C. M. Tulles, Otgello, Wash.	5.00
Geo. W. Nichols, Hancock, Mich.	5.00
Wheeler Pharmacy, Claremont, N. H.	2.00
Wm. B. Goodyear, Harrisburg, Pa.	5.00
Springdale Drug Co., Springdale, Wash.	2.00
F. W. Lambeck, Milwaukee, Wis.	1.00
Dr. J. J. Ferrell, Owensville, Mo.	5.00
Harmon C. LaBrier, Ontario, Can.	5.00
P. A. Barnett & Co., White Springs, Fla.	1.00
City Drug Store, Lubbock, Texas	1.00
Hermanson Drug Co., Tyler, Minn.	1.00
E. L. Kaliher, Swanville, Minn.	2.00
H. D. Christoph, Fredericktown, Mo.	5.00
Palace Drug Store, Sayre, Okla.	1.00
W. A. Cox, Miami, Fla.	3.00
Paris Drug Co., Roseclare, Ill.	1.00
Sherman & McConnell Drug Co., Omaha, Neb.	5.00
O. B. Hancock, French Lake, Ind.	10.00
Lohrmann & Mynders, St. Louis, Mo.	2.00
E. Bauer, St. Louis, Mo.	1.00
Louis Gies, Inwood, N. Y.	5.00
Carl E. Breman, Buffalo, N. Y.	1.00
Fowler Drug Co., Fowler, Colo.	5.00
C. C. Ladd, Rewey, Wisc.	1.00
L. J. Schroeter, St. Louis, Mo.	2.00

Geo. H. Kleinhaus, Rochester, N. Y.	5.00
S. Runhan, Chicago, Ill.	2.00
L. G. Ryley & Co., Montague, Mich.	1.00
M. B. Runkle, Lancaster, Pa.	2.00
Geo. H. Seidel, Sparta, Wis.	1.00
Harry Hirch (Donora Pharmacy), Donora, Pa.	5.00
Geo. Wilhelmi, Southgate, Ky.	1.00
T. B. Burnham, Folsom City, Cal.	1.00
McBride Drug Stores, Kingston, N. Y.	1.00
Henry F. Pingel, Dos Palos, Cal.	1.00
F. Marks, Park Falls, Wis.	1.00
Alfred W. Stamm, Milwaukee, Wis.	1.00
H. J. Haeberle, St. Louis, Mo.	1.00
Walter H. Dayton, Salt Lake City, Utah	1.00
A. D. Blanchard, New Orleans, La.	1.00
Saratoga Drug Co., Saratoga, Cal.	1.00
J. D. Ferrall, Leetonia, Ohio	2.00
C. D. Spencer, W. Manchester, Ohio	1.00
J. W. Beckwith, Port Jefferson, N. Y.	2.00
Frank J. Zrinke, Irvington, N. J.	2.00
I. G. Amsler, Pittsburgh, Pa.	1.00
A. J. Koepsell, Mayville, Wis.	1.00
Thompson Drug Store, Harkinson, N. D.	2.00
Lambert Pharmacal Co., St. Louis, Mo.	10.00
F. H. Beans, Gardiner, Me.	1.00
C. J. Perkins, Dayton, Ohio	1.00
June W. Clark, Ogden, Utah	1.00
F. D. Delbridge, address not stated	1.00
Brisley Drug Co., Prescott, Ariz.	2.00
J. P. Tonsfeldt, White Salmon, Wash.	1.00
W. E. Benfield, Cleveland, Ohio	5.00
C. J. Stahl & Co., Mt. Jewett, Pa.	1.00
Chas. J. Straub, Troy, N. Y.	1.00
J. H. McLain, Inkster, N. D.	5.00
Skidmore Drug Co., Portland, Ore.	2.00
Hubbard Drug Store, Commerce, Ga.	1.00
T. D. Landsberger, Eden, S. D.	1.00
Fabian Byerly, Portland, Ore.	5.00
W. H. Whitling, Knox, Pa.	2.00
Radford Drug Co., Houston, Texas	1.00
Ruth Pharmacy, Ruth, Nevada	5.00
Sour Lake Drug Co., Sour Lake, Texas	5.00
Lincoln Hall, Los Angeles, Cal.	1.00
Howard Albert, Lansford, Pa.	2.00
Wilfred F. Root, Brattleboro, Vt.	1.00
H. M. Bell, Decatur, Ill.	5.00
Harrelson's Pharmacy, Tabor, N. C.	5.00
L. E. Jenkins, Bayfield, Colo.	2.00
W. H. Billhartz, Pittsburgh, Pa.	5.00
W. E. Axline, Noblesville, Ind.	1.00
Leslie W. Kinyon, Chicago, Ill.	1.00
Powers Pharmacy, Blackfoot, Idaho	5.00
Garrett Byrnes, Milburn, N. J.	3.00
Maguire's Drug Store, Ririe, Idaho	2.00
E. H. Miller, Mooresville, N. C.	1.00
Emil R. Maag, Chicago, Ill.	1.00
O. H. Anderson, Garden Grove, Cal.	1.00
Walter F. Meyer, Colorado Springs, Colo.	1.00
Elmer Macom, Grove City, Pa.	1.00
A. L. Cornwall, Los Angeles, Cal.	1.00
The Crosen Lumber Co., Willard, N. M.	1.00
The Chattanooga Medicine Co., Chattanooga, Tenn.	50.00
Michie, Steele, Mo.	1.00
Wm. Schultz, Dayton, Ohio	1.00
Geo. J. McCabe, Nekoma, N. D.	1.00
G. W. Foogman, Grafton, N. D.	1.00
S. S. Casey, Frontenac, Kans.	5.00
Elder Drug Co., Port Orchard, Wash.	1.00
Price Drug Co., Somerville, Tenn.	1.00
L. G. Heinritz, Holyoke, Mass.	5.00
Findlay Steward, Cincinnati, Ohio	7.00
M. C. Teager, Arlington, Wash.	2.00
Henry J. Grersmuhl, Milwaukee, Wis.	2.00
W. G. Holloway, Dayton, Ohio	5.00
The Adams Pharmacy Co., Denver, Colo.	1.00
Winters Pharmacy, Sioux Falls, Iowa	1.00
Jas. E. Barr, Sandy Lake, Pa.	2.00
S. J. Penfield, Dayton, Ohio	1.00
W. H. Wheeler & Sons, Springfield, Vt.	2.00
W. E. Myers, Stanwood, Wash.	5.00
L. H. Weis, Dayton, Ohio	1.00
Frank S. Harvey, New Orleans, La.	2.00
W. S. Belton, Falfurias, Texas	2.50
Allen Brown, New Orleans, La.	3.00
Clyde McElmool, Farnam, Nebr.	1.00
J. L. Rose, Hendersonville, N. C.	1.00
Carl A. Plath, Klamath Falls, Ore.	5.00
Ray E. Eaton, Otsego, Mich.	2.00
Homaker & Taylor, Farmersville, Texas	2.50
F. J. Steinmetz, Palo Alto, Cal	1.00
E. L. Bower, Tenafly, N. J.	1.00
Joseph Maltas, Sault Ste. Marie, Mich.	1.00
P. J. Noyes Co., Lancaster, N. H.	5.00
J. S. Pierson, Trempealeau, Wis.	2.00
Louis Silberstein, St. Louis	3.00
Frank J. Maus, Kalamazoo, Mich.	2.00
H. C. Miller, Johnson City, Tenn.	1.00
B. J. Otto, St. Louis, Mo.	5.00
Skinner-Duprey Drug Co., Eureka, Cal.	2.50
E. B. Kemper & Co., Winters, Cal.	2.00
Mrs. Jacob Lieberstein, St. Louis, Mo.	5.00
Campbell Drug Co., Seattle, Wash.	2.00
Al. Magnusson, Arcola, Ill.	3.00
M. Cook & Co., Nashville, Tenn.	2.00
W. D. White & Co., Wilkes-Barre, Pa.	3.00
Powers-Weightman-Rosengarten Co., Phila., Pa.	100.00
Mallinckrodt Chem. Wks., St. Louis, Mo.	25.00
F. J. Trindle, Oconto, Nebr.	2.00
Hoodenpyl Drug Co., Nashville, Tenn.	1.00
Charles H. LaWall, Phila., Pa.	10.00
J. D. Petersen, So. Haven, Minn.	1.00
Geo. L. Lawrence, Melrose, Mass.	1.00
Parke, Davis & Co., Detroit, Mich.	100.00
Eli Lilly & Co., Indianapolis, Ind.	100.00
E. P. Manville, Whitehall, N. Y.	5.00
Brown Drug Co., Warsaw, N. C.	1.00
Markel-Weston Drug Co., Chelsea, Mass.	1.00
Modern Drug Shop, Filer, Idaho	1.00
G. R. Lewis, Druggist, Cripple Creek, Colo.	1.00
Martin H. Smith Co., New York, N. Y.	20.00
Frank Schachieiter, Little Rock, Ark.	5.00
W. O. Marshall, New Castle, Colo.	3.00
Geo. A. Sweetman, Granada, Colo.	1.00
L. B. Garment, Waterville, Wash.	1.00
Jas. A. Warnich, Pittsburgh, Pa.	0.25
Sharp & Dohme, New York City	100.00
Industrial Chemical Co.	25.00
J. W. Yelton, Florence, Colo.	5.00
H. M. Bailey, Bushnell, Nebr.	1.00
G. A. Geyer, Pittsburgh, Pa.	1.00
Wm. Guthrie, Emmons, Minn.	1.00
H. S. Maxwell, Plymouth, Mass.	1.00
Frank G. Milligan, Chicago, Ill.	1.00
W. O. Foster, Newton, Iowa	1.00
Hostetter Co., Pittsburgh, Pa.	25.00
Haileyville Drug Co., Haileyville, Okla.	2.00
E. A. Osborn, Denver, Colo.	1.00
Frederick Stearns & Co., Detroit, Mich.	50.00

Seabury & Johnson, New York, N. Y.	25.00
W. D. Case, Canton, Minn.	10.00
P. D. Dow, Lafayette, Colo.	2.50
J. A. Fair, Trenton, Mo.	1.00
Dr. J. F. Rooter, Tebetts, Mo.	1.00
Willis G. Gregory, Buffalo, N. Y.	5.00
G. W. Graves, Hitchita, Okla.	1.00
George H. Pendleton, Thornburg, Iowa	1.00
The Wm. S. Merrell Chem. Co., Cincinnati, Ohio	100.00
The New York Pharmaceutical Conference—by Louis Berger, Treas.	100.00
N. Y. Branch of A. Ph. A.—by G. Horstmann	25.00
Jas. H. Jones, Fordham, N. Y.	1.00
Ira B. Clark, Nashville, Tenn.	5.00
F. D. Christian, Sydney, Ohio	5.00
Foertmeyer Pharm., Cincinnati, Ohio	5.00
Saml. M. Jacobson, Elizabeth, N. J.	2.00
H. C. Tindall, Excelsior Springs, Mo.	2.00
Fairchild Bros. & Foster, New York City, N. Y.	100.00
John Hepburn, Flushing, N. Y.	5.00
Greene's Pharm., Omaha, Nebr.	1.00
Charles R. Eckbert, Kittanning, Pa.	1.00
Sewell Thornbill, Sayville, L. I., N. Y.	5.00
R. H. Van Deveer, Red Bank, N. J.	5.00
McMurray Drug Co., Abbeville, S. C.	1.00
W. J. Sturgeon, Kittanning, Pa.	5.00
David Westheimer, 322 Central Ave., Brooklyn, N. Y.	5.00
M. P. LaWall, Phila., Pa.	5.00
Josiah C. Peacock, Phila., Pa.	2.00
Edgar R. Sparks, Burlington, N. J.	1.00
A. A. Poehner, 1517 Golden Gate Ave., San Francisco, Cal.	2.00
W. E. Snelling, Norfolk, Va.	2.00
Armour & Co., Chicago, Ill.	100.00
Chas. E. Caspari, St. Louis, Mo.	10.00
Henry Lewis, Madison, Wis.	5.00
Chas. I. Clough, Tillamook, Ore.	5.00
Frank H. Knight, Winchester, Mass.	1.00
Alb. de Lorenzi, Dallas, Texas	2.00
G. Scherling, Sioux City, Iowa	5.00
Max Magdalener, Detroit, Mich.	5.00
L. L. Walton, Williamsport, Pa.	1.00
Lydia E. Pinkham Medicine Co., Lynn, Mass.	25.00
E. G. Eberle, Phila., Pa.	5.00
F. A. Seaman, Perth Amboy, N. J.	10.00
R. E. Seaman, Perth Amboy, N. J.	10.00
Geo. B. Kauffman, Columbus, Ohio	10.00
Edward Voss, Jr., Cincinnati, Ohio	5.00
David J. Reese, Phila., Pa.	1.00
W. B. Eastman, St. Johnsbury, Vt.	1.00
E. Lawrence & Co., Chicago, Ill.	25.00
H. E. Zimmer, Indianapolis, Ind.	2.00
Luis Mulet, Mayaguez, Porto Rico	1.00
Boliver Jurado, David, Panama	2.00
Marg. T. Ladrigan, 2358 Bedfors Ave., Cincinnati, Ohio	2.00
H. F. Clark, Carbondale, Pa.	1.00
Ben. L. Young, Huntsville, Ala.	2.00
Cleveland Drug Store, Phoebus, Va.	5.00
C. L. Dort, Auburn, Nebr.	5.00
E. Edson, Lynden, Wash.	1.00
Jos. W. England, Phila., Pa.	10.00
Robert A. Sloss, Dannemora, N. Y.	5.00
Dr. E. F. C. Beecham, 545 Miss. Ave., Memphis, Tenn.	1.00
Eau Gallie Pharmacy, Eau Gallie, Fla.	1.00
Holly Pharmacy, Holly, Colo.	2.00
R. C. Lucke Drug Co., Omaha, Nebr.	1.00
Chas. H. Brown, Little Falls, Minn.	5.00
Total to April 29, 1920	$2,080.15

The report was received and on motion of W. B. Day, seconded by J. H. Beal, the Council went on record as expressing its deep sense of gratitude to Chairman Freericks and his associates for the splendid service they had rendered to the Association.

On motion of W. B. Day, seconded by J. H. Beal, it was agreed that the Council recommend to the Committee on Finance that the final balance of $448.31 in the hands of the Soldier and Sailor Advisory Committee be appropriated for the use of the General Membership Committee to be used for securing active members from the ranks of the World War Veterans.

Treasurer Whelpley spoke at length upon the increasing duties of his office.

F. J. Wulling stated that Treasurer Whelpley having expressed the desire to be relieved of his office, he would move that the Council express its appreciation of Dr. Whelpley's many years of service and request him to continue in office for at least another year, and that if at the end of that time he insists on laying down the burden of office, he present a plan that will take into consideration the administration of the future and larger association finances along the lines, partially at least, of modern trust administration suggested by him.

The motion was seconded by W. B. Day, and carried.

Adjourned to meet Monday, May 10, 1920, at 7 P.M.

J. W. ENGLAND, *Secretary.*

AN APPEAL.

TO THE MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Earnest solicitations for financial aid to purchase food to keep the pharmacists of Austria and their families from starvation and relieve their sufferings have been received by various individuals and organizations in this country, the urgent necessity for immediate assistance being shown in the request of the officers of the Austrian Pharmaceutical Society addressed to the American Pharmaceutical Association.

At the first general session of the recent meeting of the A. Ph. A. held in Washington, attention was called to these pleas for assistance by Hugo Kantrowitz, of New York, presenting the following appeal:

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION:

An Appeal for Austrian Pharmacists.

American pharmacists have always been so generously responsive to the cry of suffering and distress, that I am very sure an appeal to them to help save the lives of Austrian pharmacists and their families will not go unheeded at this time. As a result of the World War, appalling conditions exist in Austria, and the very necessities of life are needed to keep the population from actually starving to death. Among the greatest sufferers in that country are the pharmacists, and through the Associations of Austrian Pharmacists they have made an urgent appeal to American Pharmacists to help keep them alive. Their condition is critical, and the call pressing. In the interest of humanity we should do what we can to feed those who are starving to death.

What they need most is food. Money sent to the starving does no good, as there is no food to buy in Austria. Individual food parcels sent from America fail to reach those for whom intended, and for this reason the American Relief Administration has established a Relief Warehouse in Vienna, and arranged for the sale of American Warehouse Food Drafts at all banks in the United States, which when presented at the American Warehouse in Vienna, will enable the holder thereof to draw food.

Personally, if it can be legally done, I should like to have the American Pharmaceutical Association make a *direct contribution* to help relieve the starving Austrian pharmacists. If this can be done, the money can be sent through the American Relief Administration, 115 Broadway, New York, or any other desired agency. Any contributions may be sent to Charles F. Schleussner, 1379 Lexington Avenue, New York City and Food Drafts will be promptly forwarded.

I hope the members of the American Pharmaceutical Association will take action on this request. In the eyes of the world we are a creditor country, and our pharmacists in common with other business men have not suffered the deprivations which have brought disaster and death to other nations. The World War has ended, and we harbor no feelings of revenge. Rather as Americans and pharmacists of a victorious nation, it is for us to bind up the wounds of the fallen, and to contribute of our resources to keep alive the struggling Austrian pharmacists and their families.

Respectfully submitted by

HUGO KANTROWITZ,

Washington, D. C., May 6, 1920. 104 John St., New York City.

On motion of Frank H. Freericks, seconded by Prof. Lloyd, the matter was referred to the Council for consideration. At a subsequent session of the latter body, Mr. Kantrowitz was authorized to take charge of securing contributions. Members are requested to contribute money only, checks or drafts for which should be made payable to Charles F. Schleussner, 1379 Lexington Ave., New York City, who will turn the same over to Mr. Kantrowitz who will purchase Food Drafts which are to be sent to the two Austrian pharmaceutical societies in Vienna and by them distributed for the benefit of their members. A $10.00 Food Draft entitles the holder thereof to 24½ pounds of flour, 10 pounds of beans, 8 pounds of bacon and 8 cans of condensed milk, while a $50.00 Food Draft will provide the holder with 140 pounds of flour, 50 pounds of beans, 16 pounds of bacon, 15 pounds of lard, 12 cans of corned beef, and 48 cans of condensed milk.

The need is urgent and it is hoped that contributions will be generous and quickly forthcoming. American pharmacists have always been liberal in response to the call of suffering, and we are sure their offerings will be appreciated by their starving colleagues in Austria. Send your contribution to Mr. Kantrowitz, 104 John Street, New York City, at once and he will attend to the rest.

NOTE.—The Editor was instructed to publish this appeal and the action thereon by the Association in the June issue, JOURNAL A. PH. A.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* CASWELL A. MAYO, H. B. MASON, E. L. NEWCOMB, CLYDE L. EDDY, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

Collaborators: C. HERBERT PACKARD, President, A. Ph. A.; WILBER J. TEETERS, President, A. C. P. F., H. C. CHRISTENSEN, Secretary, N. A. B. P., E. FULLERTON COOK, Chairman, U. S. P. Revision Committee; CHARLES H. LAWALL, Chairman, Council A. Ph. A. The Chairmen of the Sections A. Ph. A.: A. G. DUMEZ, IVOR GRIFFITH, EDWARD SPEASE, CHARLES O. LEE, CURT P. WIMMER and E. F. KELLY.

PHARMACEUTICAL RESEARCH.

In a recent issue of the *Scientific American Monthly* the statement is made that "We have really just begun to get results in that interesting field where chemistry and medicine meet, and there is every reason to believe that further experimentation will lead to the discovery and utilization of new substances that will be of greatest efficiency in the treatment of diseases." This statement is agreed to; there is also great opportunity, and proven years and years ago, that the experimentation and discoveries of pharmacists resulted in the establishment of the large chemical industries; Scheele is referred to, but in other lines references might readily be cited which opened up other fields of activities and brought natural resources to largely extended usefulness.

The medical profession is greatly concerned in pharmaceutical research and, for reasons cited, the chemical industries are intensely interested. The custom abroad was to make a few specialties discovered by laboratory workers pay for the investigations and utilize the by-products. Coöperative research can be made of great value.

BRITISH MINISTRY OF HEALTH CONTROL OF THERAPEUTIC SUBSTANCES.

In an editorial of May 8th, the *Pharmaceutical Journal and Pharmacist* states that the "therapeutic substances" now under consideration by the British Ministry of Health are recognized medicinal substances, the purity and standard of efficacy of which cannot be adequately ascertained by the employment of ordinary chemical tests as can that of the great majority of medicinal substances. This determination can only be done in the substances under consideration in properly equipped laboratories by the employment of biological or physiological methods. Among these are serums and vaccines, and mineral and vegetable bodies such as salvarsan, digitalis, etc.

It is said that in Great Britain there is at present no effective supervision and control of the manufacture or standardization of many of the important agents included in the classes of therapeutic agents now to come under supervision. The work of the Committee is, among other things, to devise measures to coördinate and control the various tests and standards employed by firms and persons engaged in the preparation and sale of these substances and to devise a uniform system of standardization and control the better to guarantee that these agents are what they purport to be, and are of an accepted standard of efficacy.

SODIUM *vs.* POTASSIUM.

Many of our textbooks continue to specify potassium as the only alkali with which many reactions can be carried on efficiently, and the methods contained in these books require its use in much of the detailed laboratory work.

The *Scientific American Monthly* for April cites as an instance worthy of emphasis in the manufacture of synthetic phenol, where according to the textbooks, in which statements of previous authorities are often taken at their face value without experiments to check their accuracy, potassium hydroxide must be used if satisfactory yields are to be obtained. This statement has been widely copied throughout the literature and is probably based on insufficient and faulty experimentation or carefully planned potash propaganda. In this country we were compelled to produce phenol during the war without potash and one of the companies assigned

the problem to their research laboratory with the result that ways were found of obtaining just as good yields in fusing sodium benzene sulphonate with sodium caustic to produce phenol as could be obtained with potassium hydroxide. In large scale production, ninety percent of the theoretical yield was obtained, which is believed to be as high as yields attributed to potash. By very careful control yields of ninety-four percent of that theoretically possible were obtained in experimental fusions, and two investigators found that by excluding air they could actually obtain ninety-nine percent of the theoretical yield when using sodium benzene sulphonate and sodium hydrate. The displacement of potassium salts by those of sodium in medicine is possible, at least to a considerable extent.

THE SUPPLEMENT TO THE FRENCH CODEX.

The Supplement to the French Codex became official April 1st. Purity rubrics are provided for. Pending the issue of a new edition of the Codex, products may be given official sanction by publication in the *Bulletin de l'Acadamie de Medicine*. Twelve new preparations have been included in the Supplement: Barbituric Acid, Stovaine, Fluidextract of Cinchona, Urotropin, Oil of Cade, Novocain, Menthol Ointment (1% in petrolatum), Piperazine Hydrate, Solution of Silver Nitrate (2%), Iodated Tincture of Iodine, Antidysenteric Serum, and Antimeningococcic Serum.

COMPULSORY HEALTH INSURANCE CONDEMNED, BUT NOT ALCOHOL, BY A. M. A.

The American Medical Association, at the New Orleans meeting, refused to pass a resolution condemning the use of alcohol in the treatment of influenza. The Association went on record as opposed to Compulsory Health Insurance.

UNITED STATES BOTANIC GARDEN CENTENARY ANNIVERSARY SAME AS THAT OF U. S. PHARMACOPOEIA.

Whether the framing of the U. S. Pharmacopoeia had anything to do with the action of Congress on May 8, 1820, or not, in granting five acres of land for a botanical garden, is not recorded. Four years later, on May 26, 1824, the area of this grant was extended. Many of the presidents have planted trees, which now are among the show spots of the National Capitol.

Throughout the years the Smithsonian Institution has been deeply interested in the upbuilding of the garden, and many fine specimens of plant life gathered in many climes by intrepid explorers have found a home in the garden.

The first plants installed were gathered by the Wilkes exploring expedition to the southern hemisphere. Some of those plants are still living and many of the plants in the present garden are descendants of those brought to the country by that party headed by the late Rear Admiral Charles Wilkes in 1838–42.

The Botanic Garden is spreading its influence by coöperating with state institutions, colleges and universities. Through the members of Congress these gardens distribute various plants into all communities throughout the country, as the founders of the garden proposed to do. There has been assembled a very valuable museum of plant life, including every known plant that can be induced to thrive here.

THE DECLARATION OF U. S. INDEPENDENCE PROCLAIMED ON JULY 8.

Quite a number of the antecedents and descendents of Apothecary Christopher Marshall plied the mortar and pestle, as did the latter. He is also known as the Quaker patriot and diarist. In his diary under the date of July 8 appears this entry: "At eleven went and met Committee of Inspection at Philosophical Hall; went from there in a body to the lodge; joined the Committee of Safety (as called); went in a body to State-House yard, where, in the presence of a great concourse of people, the Declaration of Independence was read by John Nixon.

"The company declared their approbation by three repeated huzzas.

"The King's Arms were taken down in the Court-Room, State-House, same time. * * * I went and dined at Paul Fook's. * * * Then he and the French Engineer went with me on the commons, where the same was proclaimed at each of the five Battalions. * * * There were bonfires, ringing bells, with other great demonstrations of joy upon the unanimity and agreement of the declaration."

HIGH PRICES IN 1760.

In 1760 American supplies were largely purchased in England. The *London Times* states that twice a year General Washington forwarded a list of such articles, comprising necessities and conveniences for household purposes, and so minute and particular was he in these concerns that he could tell if anyone took advantage of him. In a letter written in 1760 he says: "And here I cannot forbear ushering in a complaint of the exorbitant prices of goods this year. For many years I have ordered goods from London as well as other parts in Britain, and can truly say I have never had such a pennyworth before." On May 1, 1759, he wrote to Robert Carey, merchant, of London: "I beg you to send me by first ship bound for the Potomac as I am in immediate want of them." The list, which is entirely in Washington's autograph, includes not only tools, but medicines and household supplies. Among the latter, "25 lb. Glew," "6 bottles Turlington's Balsam," "4 oz. Best Rhubarb," "1 lb. Spirma Citi," "40s. worth of Medicines proper for horses," "& such others as are most proper."

TECHNICAL TABLETS.

BY WILBUR L. SCOVILLE.

One of the first (if not the first) colleges of pharmacy was founded in 1550 at Rouen. Among the earliest textbooks in pharmacy was one by Abbé Nollet about 1740, and by Hagen about 1749–1829.

Propyl alcohol is proposed as a vehicle for perfumes and cosmetics. It has properties similar to ethyl alcohol but is stronger in action. The workings of the prohibition law may develop the use of this alcohol for external preparations.

Sodium cacodylate is sufficiently alkaline in reaction to precipitate strychnine from solution unless free acid is added.

Salvarsan has been tried for pyorrhea with excellent results. The germ of this disease is a spirochete and the arsenic compound is very efficacious. In mild forms it is rubbed into the gums, in severe cases it is injected intravenously.

Leafy foods, such as spinach, cabbage, lettuce, etc., are rich in the fat-soluble vitamines, and thus important in nutrition, though low in nutritive powers.

Biologists have concluded that the harmful effect of poor ventilation is not due to the chemical contamination of the air, but to disturbances caused by interference with the elimination of body heat. Cold water, if freshly boiled to expel the air will preserve fruits by simply filling the jars containing the fruits to the brim with the water and sealing them. Diastasic reactions in the fruits will use up all the remaining oxygen, and the fermentation or putrefactive germs present cannot develop in absence of air; consequently the fruit will keep as long as the jar is air-tight.

In flesh wounds a proteolytic bacillus, known as the Reading bacillus, is usually present. This promotes healing by liquefying the dead protein in the wound, thus removing the base on which pathogenic germs subsist as well as permitting the living tissues to unite. Antiseptics usually destroy this bacillus as well as the pathogenic germs, and healing is thus hindered. Nature has a system which needs little artificial help.

In the treatment of wounds by antiseptics a coöperation between the tissues and the antiseptic gives the best results. The flavine dyes, acriflavine, proflavine and brilliant green have proved especially successful because they are strong in inhibiting the growth of bacteria but are weak in action upon fleshy tissues. They do not require frequent renewal, and they prevent the development of pathogenic germs.

Pills containing arsenous acid with organic matter, when kept moist, have developed a garlic odor and a mould, the arsenic being partly volatilized as ethyl arsenite. Arsenic pills, if stored, should be well dried or coated.

The administration of very small doses of gelsemium and of bryony to rabbits has been found to markedly increase their resistance to influenza and pneumonia.

PERSONAL AND NEWS ITEMS.

CHICLE-PRODUCING TREES DISCOVERED IN BRITISH GUIANA.

Announcement has been made in a report submitted by Consul McCunn of the discovery of chicle-producing trees in British Guiana. Prospecting expeditions sent into the interior have recently returned to Georgetown with fully 600 pounds of chicle, and preparations are now being made by the discoverer, who holds a concessional right over 6,200 square miles of territory, to send out four prospecting parties in order to continue investigations and ascertain the capacity of

the tract. Territory thus far examined is reported to be capable of yielding 200,000 pounds of gum annually.

SODIUM SULPHATE DEPOSIT IN CANADA.

It is reported from Calgary, Alberta, that an important discovery of sodium sulphate has been made near Fusilier, Saskatchewan, on the Lacombe-Kerrobert branch of the C. P. R. The deposit is estimated at 2,000,000 tons, and is claimed by analysts to be 95 percent pure in its raw state. The "lake" is approximately one mile long and 1,000 yards wide, and the depth of the deposit ranges from two feet at the edge to 11 feet at the center. A pit dug in the center of the deposit disclosed that a spring carrying a heavy solution of sodium sulphate flowed in.

UNITED DRUG COMPANY MAY BUY BOOTS, LTD., OF ENGLAND.

Newspaper reports of May 28 state that the United Drug Co. is considering the purchase of Boots, Ltd. The latter own 647 stores in Great Britain and the business is said to amount to about 40 million dollars annually.

Bishop Remington, son of the late Prof. Joseph P. Remington, recently addressed the South Dakota College of Pharmacy on "The Ethics of Pharmacy." He dealt on the great part pharmacists may have in the development of a community.

John F. Hancock, senior ex-president of the American Pharmaceutical Association, has been elected its honorary president for 1920–1921.

Vice-President E. Fullerton Cook, of the A. Ph. A., is the chairman of the U. S. P. Revision Committee. He was guest of honor at a dinner in Philadelphia, May 28.

Dr. Reid Hunt of Harvard Medical School, a member of the American Pharmaceutical Association, was elected president of the U. S. P. Convention, 1920–1930.

George D. Beal, associate professor of chemistry of the University of Illinois, was awarded the Ebert Prize by the American Pharmaceutical Association for his paper on "The Shaking Out Method for the Quantitative Estimation of Alkaloids."

George M. Beringer, Leonard A. Seltzer and **John Culley** are the retail pharmacists who were elected members of the U. S. P. Revision Committee.

Surgeon-General Braisted spoke at one of the General Sessions of the American Pharmaceutical Association.

W. G. Crockett, for the past year professor of pharmacy in Baylor University College of Pharmacy, has accepted the chair of pharmacy in the Medical College of Virginia.

A. G. DuMez, of the Hygienic Laboratory is Secretary of the Council, A. Ph. A.

Edwin Baker, Shelburne Falls, Mass., had a record of fifty-six consecutive years at the same old stand, before retiring from business.

Major Clark, of Surgeon-General Ireland's department, and Lieutenant Dickens, under Surgeon-General Braisted, were speakers at the convention of the American Pharmaceutical Association. Both of them are pharmacists and the former is also a graduate in medicine. Lieutenant Dickens is one of the editors of *The Hospital Corps Quarterly*.

OBITUARY.

JOHN HENRY DAWSON.

John Henry Dawson, a member of the American Pharmaceutical Association since 1882, died at his home in Glendora, Cal., last month. He was born in New York City in 1852, learned the drug business with Edwin Rulon and graduated from the Philadelphia College of Pharmacy in the class of 1872. For a time thereafter he was engaged in the pharmacy of Alexander Hudnut at 218 Broadway, New York City. Since 1875 he has lived in California and, with the exception of a few years, in San Francisco. He held a number of offices in the Association, was active in the entertainment of the members during the convention of 1889 and Local Secretary when the Association met in San Francisco in 1915. A sketch of the deceased will be found in the February JOURNAL A. PH. A. for 1917, p. 115.

VALENTINE SCHMIDT.

Valentine Schmidt was born in Strassburg, France, July 29, 1840; he died April 1, at his home in San Francisco. As a lad of fourteen years he came to Chicago where he was employed in the drug store of J. Roemheld. In 1860 he went to San Francisco and for a

number of years was manager of Wakelee's Pharmacy. In 1880 he entered business on his own account; the fire of 1906 destroyed his store and dwelling, but with the energy that marked the people of this stricken city he rebuilt on a larger and better scale.

The passing of Valentine Schmidt brings to mind the names of many who served pharmacy and the American Pharmaceutical Association in California. They had high ideals and labored to place the profession on a high plane. A number of them gave their services to upbuild the California College of Pharmacy, their State Association, and a majority were life-long members of the A. Ph. A. The deceased held the degrees of B.S., M.S., M.D., and Ph.D. Two sons survive, Edwin Valentine and Edward S. Schmidt.

Frederick A. Dalpé, for many years employed with Powers-Weightman-Rosengarten Company, died April 29. He was born at Delaware Water Gap about sixty years ago. He graduated from the Philadelphia College of Pharmacy in 1884. Mrs. Dalpé survives the deceased.

SOCIETIES AND COLLEGES

List of Registrants at the 68th Annual Convention of the American Pharmaceutical Association Washington, D. C. (List submitted by Office of Local Secretary.)

A.

ALBRECHT, JOS., Cleveland, O.
ALSBERG, CARL L., Washington, D. C.
ANDERSON, MR. AND MRS. WM. C., Brooklyn, N. Y.
ANDING, C. E., Flora, Miss.
ANDREWS, MR. AND MRS. GEO. M., Woodstown, N. J.
ANTONOW, SAMUEL L., Chicago, Ill
ARCHER, MR. AND MRS. F. W., Boston, Mass.
ARNY, H. V., New York, N. Y.
AVERY, MR. AND MRS. CHAS. H., Chicago, Ill.

B.

BAUER, MISS ELSIE, New York, N. Y.
BEAL, G. D., Urbana, Ill.
BEAL, J. H., Urbana, Ill.
BENFIELD, MR. AND MRS. H. E., Cleveland, O.
BENT, MR. AND MRS. E. C.
BERG, FRANTZ, New York, N. Y.
BERGER, ERNEST, Tampa, Fla.
BERINGER, MR. AND MRS. GEO. M., Camden, N. J.
BIBBINS, MR. AND MRS. F. E., Indianapolis, Ind.
BIRD, LLOYD C., Richmond, Va.
BLACKWOOD, RUSSELL T., Philadelphia, Pa.
BLACKWOOD, RUSSELL T., JR., Philadelphia, Pa.
BLAIR, MR. AND MRS. S. O., Monroe, N. C.
BLAKESLEE, L. G., St. Louis, Mo.
BOBERG, O. J. S., Eau Claire, Wis.
BODEN, E. T., Bay City, Mich.
BOOTH, MRS. C. F., Buffalo, N. Y.
BRADBURY, MR. AND MRS. W. H., Washington, D. C.
BRADBURY, MRS. HOWARD M., Washington, D. C.
BRADLEY, MR. AND MRS. T. J., Boston, Mass.
BRITTON, F. J., Richmond, Va.
BROWN, LINWOOD A., Lexington, Ky.
BUCH, MR. AND MRS. HENRY, New York, N. Y.
BUCH, MISS SUSAN M., New York, N. Y.
BURDA, MR. AND MRS. S. W., Chicago, Ill.
BURDINE, MRS. A. V., Washington, D. C.
BUZZELL, A. L., Detroit, Mich.

C.

CALVER, MRS. J. V., Washington, D. C.
CAMPBELL, CHAS. B., Washington, D. C.
CAMPBELL, MRS. FRED B., Washington, D. C.
CANNON, CLAUDE C., Washington, D. C.
CARPENTER, MRS. TOM, Valparaiso, Ind.
CASPARI, CHARLES E., St. Louis, Mo.
CHRISTENSEN, H. C., Chicago, Ill.
CLARK, A. H., Chicago, Ill.
CLARK, A. J., Crozet, Va.
COLE, B. OLIVE, Washington, D. C.
CONNELLY, MRS. FRANK J., Boston, Mass.
COOK, MR. AND MRS. E. F., Philadelphia, Pa.
CROWE, ROBT. L., Memphis, Tenn.
CULLEY, MR. AND MRS. JOHN, Ogden, U.

D.

DAY, WM. B., Chicago, Ill.
DAY, MISS HELEN M., Chicago, Ill.
DECKER, GEORGE, New York, N. Y.
DEFORD, ALLEN V., Washington, D. C.
DIEKMAN, GEORGE C., New York, N. Y.
DINER, JACOB, New York, N. Y.
DOHME, A. R. L., Baltimore, Md.
DOYLE, MR. AND MRS. R. A., East Prairie, Mo.
DUBOIS, WM. L., Catskill, N. Y.
DUBOIS, MRS. I. MORTIMER, Catskill, N. Y.
DUMEZ, MR. AND MRS. A. G., Washington, D. C.
DUNCAN, CHESTER A., Dallas, Texas.
DUNN, MRS. JOHN A., Long Island, N. Y.
DUNNING, H. A. B., Baltimore, Md.
DYE, C. A., Columbus, O.

E.

EASTERDAY, MR. AND MRS. H. C., Washington, D. C.
EATON, M. C., Norwich, N. Y.
EBERLE, E. G., Philadelphia, Pa.
EDDY, CLYDE L., New York, N. Y.
ELDRED, MR. AND MRS. FRANK R., Indianapolis, Ind.
ELDRED, RICHARD, Indianapolis, Ind.
EMANUEL, MR. AND MRS. LOUIS, Pittsburgh, Pa.
ENGELHARDT, H., Baltimore, Md.
ENGLAND, MR. AND MRS. J. W., Philadelphia, Pa.
ENGLAND, MISS ELIZABETH, Philadelphia, Pa.
EWE, GEO. E., Philadelphia, Pa.
EWING, C. O., Boston, Mass.

F.

FACKENTHALL, PHILIP F., Richmond, Va.
FAIRCHILD, TAPPEN, New York, N. Y.
FALKENHAINER, CHAS., Dubuque, Ia.
FANTUS, MR. AND MRS. BERNARD, Chicago, Ill.
FANTUS, MRS. FELIX, Chicago, Ill.
FARWELL, O. A., Detroit, Mich.
FARLEY, L. J., Richmond, Va.
FARR, H. V., St. Louis, Mo.
FASER, H. M., University, Miss.
FISCHELIS, MR. AND MRS. R. P., Philadelphia, Pa.
FISCHER, CHAS. F., New York, N. Y.
FISK, MR. AND MRS. FRANK B., Indianapolis, Ind.
FLEMER, MR. AND MRS. H. LEWIS, Washington, D. C.
FORD, M. N., Columbus, O.
FOUCH, W. M., Baltimore, Md.
FOX, W. M., Cleveland, O.
FOULKE, JAMES, Jersey City, N. J.
FRANCIS, J. M., Detroit, Mich.
FREERICKS, F. H., Cincinnati, O.
FRICK, ROBT. J., Louisville, Ky.
FROST, MR. AND MRS. S. H., St. Paul, Minn.
FUHRMANN, MR. AND MRS. CHAS. J., Washington, D. C.
FULLER, MR. AND MRS. H. C., Washington, D. C.

G.

GAMMON, MR. AND MRS. I. P., Brookline, Mass.
GARRELS, MR. AND MRS. CHAS., Washington, D. C.
GATHERCOAL, E. N., Chicago, Ill.
GANE, E. H., New York, N. Y.
GAYLE, MR. AND MRS. J. W., Frankfort, Ky.
GERSTNER, ROBT. R., New York, N. Y.
GIETNER, CHAS., St. Louis, Mo.
GODDING, MR. AND MRS. JOHN G., Boston, Mass.
GOECKEL, MR. AND MRS. HENRY J., Cranford, N. J
GORGAS, MR. AND MRS. GEO. A., Harrisburg, Pa.
GRABER, HOWARD T., Detroit, Mich.
GRACE, MR. AND MRS. WM. D., Portsmouth, N. H.
GRANT, E. H., Cincinnati, O.
GRAY, WM., Chicago, Ill.

GREGORY, WILLIS G., Buffalo, N. Y.
GREGORY, MISS L. F., Buffalo, N. Y.
GRIFFITH, IVOR, Philadelphia, Pa.

H.

HAGEMEISTER, W. T., Cleveland, O.
HALLENBERG, OSCAR, Fargo, N. Dak.
HALLUM, CHAS. M., Brownwood, Tex.
HAM, T. J., JR., Richmond, Va.
HAMILTON, H. C., Detroit, Mich.
HANCOCK, J. E., Baltimore, Md.
HANCOCK, JOHN F., Baltimore, Md.
HANDY, JOHN A., Buffalo, N. Y.
HARPER, WM. G., Charleston, S. C.
HARRIS, H. L., New York, N. Y.
HAVENHILL, L. D., Lawrence, Kas.
HAYMAKER, FRANK B., Clarksburg, W. Va.
HENDRICKSON, MR. AND MRS. RAYMOND, Philadelphia, Pa.
HEINRITZ, FRED'K., Cincinnati, O.
HENRY, MRS. CHAS. L., Washington, D. C.
HILTON, S. L., Washington, D. C.
HODGES, MR. AND MRS. S. C., Greenwood, S. C.
HOFFMAN, HERBERT H., Sandusky, Mich.
HOGAN, W. C., Aikins, Ark.
HOLLIDAY, F. E., New York, N. Y.
HOLZHAUER, CHARLES W., Newark, N. J.
HOLZHAUER, LOUISE D., Newark, N. J.
HOPP, MR. AND MRS. LEWIS C., Cleveland, O.
HOSTMANN, MR. AND MRS. J., Hoboken, N. J.
HOUGHTON, E. M., Detroit, Mich.
HOWELL, E. V., Chapel Hill, N. C.
HUHN, CHAS. H., Minneapolis, Minn.
HUNSBERGER, AMBROSE, Philadelphia, Pa.
HYDE, MR. AND MRS. JOS. B., JR., Charleston, S. C.
HYNES, J. A., Chicago, Ill.
HYNSON, HENRY P., Baltimore, Md.

J.

JACKSON, JOHN E., Tazewell, Va.
JARRETT, WALTER R., Oklahoma City, Okla.
JOHNSON, C. W., Seattle, Wash.
JOHNSON, D. B. R., Norman, Okla.
JOHNSON, GEO. A., Richmond, Va.
JOHNSON, J. T., Fergus Falls, Minn.
JONES, ERNEST R., Detroit, Mich.
JONES, MR. AND MRS. D. F., Watertown, S. D.
JORDAN, C. B., Lafayette, Ind.

K.

KAGY, E. O., Des Moines, Ia.
KALUSOWSKI, H. E., Washington, D. C.
KANTROWITZ, HUGO, New York, N. Y.
KEBLER, LYMAN F., Washington, D. C.
KEBLER, MRS. IDA E., Washington, D. C.
KELLY, E. F., Baltimore, Md.
KERFOOT, W. T., JR., Washington, D. C.
KESTEN, GEO. H., Milwaukee, Wis.
KILMER, F. B., New Brunswick, N. J.
KIRBY, FRANK B., Chicago, Ill.
KNOEPFEL, MR. AND MRS. W. H., Scranton, Pa.
KOBYLANSKI, Z. W., Cleveland, O.
KOCH, J. A., Pittsburgh, Pa.
KOCH, FLORENCE, Pittsburgh, Pa.
KRAEMER, HENRY, Ann Arbor, Mich.
KREMERS, EDWARD, Madison, Wis.

L.

LABOWITZ, DAVID B., Pittsburgh, Pa.
LAPIERRE, MR. AND MRS. E. H., Cambridge, Mass.
LASCOFF, J. L., New York, N. Y.
LAWALL, CHARLES H., Philadelphia, Pa.
LAWALL, MILLICENT R., Philadelphia, Pa.
LEE, CHAS. O., Lafayette, Ind.
LEEPER, MRS. AUGUSTA, Washington, D. C.
LEHMAN, MR. AND MRS. R. L., New York, N. Y.
LEWIS, LAWRENCE C., Tuskegee, Ala.
LEWTON, F. L., Washington, D. C.
LIGHT, J. M., Chicago, Ill.
LINTON, MR. AND MRS. A. W., Seattle, Wash.
LITZ, J. E., Graham, Va.
LLOYD, JOHN URI, Cincinnati, O.
LLOYD, J. T., Cincinnati, O.
LOHNESS, A. P., Brooklyn, N. Y.
LOTZ, E. GRACE, Baltimore, Md.
LYMAN, R. A., Lincoln, Neb.
LYNN, CHAS. J., Indianapolis, Ind.

M.

MCCORMICK, J. H., Ann Arbor, Mich.
MCDUFF, GEORGE W., New Orleans, La.
MCKINNEY, ROBT. S., Taneytown, Md.
MCQUADE, JERRY, New York, N. Y.
MAAS, ARTHUR R., Los Angeles, Cal.
MANSFIELD, WILLIAM, Albany, N. Y
MAYER, JOSEPH L., Brooklyn, N. Y.
MAYO, CASWELL A., Cincinnati, O.
MEBANE, N. M., Richmond, Va.
MEISSNER, MR. AND MRS. F. W., LaPorte, Ind.
MENGER, RUTH C., Philadelphia, Pa.
MENSER, LOUIS J., Dover, N. J.
MENZEL, MAX, Pipestone, Minn.
MERRELL, MR. AND MRS. CHAS. G., Cincinnati, O.
MIKKELSEN, N., Kenesaw, Neb.
MILLER, MR. AND MRS. A. W., Philadelphia, Pa.
MITCHELL, A. S., Washington, D. C.
MOLLETT, MR. AND MRS. CHAS. E. F., Missoula, Mont.
MORTENSON, FRANK E., Pueblo, Colo.
MOTLEY, E. T., Cleveland, O.
MUHLHAN, OTTO E., Cleveland, O.
MURPHY, MR. AND MRS. D. E., Cincinnati, O.
MURRAY, MR. AND MRS. B. L., Rahway, N. J.
MURRAY, EDWIN, Rahway, N. J.
MURRAY, JAY, Rahway, N. J.
MURRAY, E. L., Americus, Ga.

N.

NELSON, JOHN, Lake Park, Minn.
NEWCOMB, EDWIN L., Minneapolis, Minn.
NEWTON, H. C., Omaha, Neb.
NICHOLS, A. B., Philadelphia, Pa.
NITARDY, F. W., New York, N. Y.
NOEL, H. S., Indianapolis, Ind.
NOLL, M., Atcheson, Kas.
OLDER, O. O., Charleston, W. Va.
OLPP, MRS. A. E., West Hoboken, N. J.
OSSEWARD, C., Seattle, Wash.

P.

PACKARD, C. HERBERT, Boston, Mass.
PARISEN, MR. AND MRS. G. W., Perth Amboy, N. J.
PARKER, R. M., Richmond, Va.
PATCH, EDGAR L., Boston, Mass.
PAYNE, GEO. F., Atlanta, Ga.
PEARSON, PAUL, Washington, D. C.
PIESINGER, MARIE A., New Prague, Minn.
PHILIPS, W. B., Fruitvale, Cal.
PITTENGER, PAUL S., Philadelphia, Pa.
POWER, FREDK. B., Washington, D. C.

R.

RAEUBER, E., Milwaukee, Wis.
RABAK, FRANK, Washington, D. C.
REHFUSS, JACOB H., Brooklyn, N. Y.
REIMANN, MR. AND MRS. GEORGE, Buffalo, N. Y.
RENFIELD, MR. AND MRS. H. E., Cleveland, O.
RICHARDSON, MR. AND MRS. W. S., Washington, D. C.
RICHTMANN, W. O., Madison, Wis.
ROEHRIG, ALBERT M., Savannah, Ga.
ROLSTON, W. W., Richmond, Va.
ROSENGARTEN, GEORGE D., Philadelphia, Pa.
RUDD, W. F., Richmond, Va.
RUDDIMAN, E. A., Nashville, Tenn.
RUSBY, H. H., New York, N. Y.

S.

SAYRE, MR. AND MRS. L. E., Lawrence, Kas.
SAYRE, MRS. L. E., JR., Philadelphia, Pa.
SCHACHLEITER, FRANK, Little Rock, Ark.
SCHAEFER, HUGO H., New York, N. Y.
SCHENKERBERG, MRS. J. L., Weehawken, N. J.
SCHMIDT, MR. AND MRS. ADOLPH, McKeesport, Pa.
SCHMIDT, ELSA, Peoria, Ill.
SCHNEIDER, ALBERT, Lincoln, Neb.
SCHULTZ, ANNA L., Tremont, Pa.
SCHULZE, LOUIS, Baltimore, Md.
SCOTT, S. M., JR., Terra Alta, W. Va.
SCOVILLE, MR. AND MRS. WILBUR L., Detroit, Mich.
SELZER, MR. AND MRS. EUGENE R., Cleveland, O.
SELTZER, LEONARD A., Detroit, Mich.
SERLES, EARL R., Brookings, S. D.
SHADWELL, L. R., Harrisonburg, Va.
SHELLEY, E. V., Memphis, Tenn.
SIMMS, GENEVIEVE J.
SMITH, C. D., New York, N. Y.
SMITH, HARRY B., Brooklyn, N. Y.
SNOW, MR. AND MRS. CLYDE M., Chicago, Ill.
SNYDER, J. P., Norwich, N. Y.
SPEASE, MR. AND MRS. EDWARD, Cleveland, O.
STEWART, F. E., Philadelphia, Pa.
STOCKBERGER, MR. AND MRS. W. W., Washington, D. C.
STONE, FRANK T., Washington, D. C.
SUHR, LOUISE H., West Hoboken, N. J.

T.

TAYLOR, MR. AND MRS. A. C., Washington, D. C.
TEETERS, W. J., Iowa City, Ia.
TERRY, R. W., Cleveland, O.
THIESING, E. H., Cincinnati, O.

THOMAS, JOHN B., Baltimore, Md.
THOMASON, W. P., Guntersville, Ala.
THOMPSON, H. L., Salt Lake City, Utah.
THORBURN, MR. AND MRS. A. D., Indianapolis, Ind.

V.

VIEHOEVER, MR. AND MRS. A., Washington, D. C.
VIVO, J. A., Norfolk, Va.

W.

WADDELL, J. A., University, Va.
WALKER, CHAS. F., Richmond, Va.
WALKER, ALF, Sutton, W. Va.
WALKER, DANIEL V., Atkinson, N. C.
WALLACE, JOHN C., New Castle, Pa.
WALSDORF EDWARD H., New Orleans, La.
WALTON, MR. AND MRS. LUCIUS L., Williamsport, Pa.
WARREN, L. E., Chicago, Ill.
WEINSTEIN, Samuel, Richmond, Va.
WHEELER, DAVID T., Hudson, Mass.
WHEELER, CARLTON B., Hudson, Mass.
WHEELER, MILLICENT T., Hudson, Mass.
WHELPLEY, MR. AND MRS. H. M., St. Louis, Mo.
WHILDEN, C. B., Marion, S. C.
WHITE, MR. AND MRS. J. L., New York, N. Y.
WHITE, ELLIOTT S., Richmond, Va.
WHITE, ROBT. C., Philadelphia, Pa.
WHITEHOUSE, HARRY, Johnson City, Tenn.
WHORTON, MR. AND MRS. CARL, Gadsden, Ala.
WILEY, MR. AND MRS. H. W., Washington, D. C.
WIMMER, C. P., New York, N. Y.
WINNE, A. L. I., Richmond, Va.
WISNER, MR. AND MRS. E. H., Valparaiso, Ind.
WOOD, H. C., JR., Philadelphia, Pa.
WOOTEN, THOS. V., Boston, Mass.
WULLING, FREDERICK J., Minneapolis, Minn.

Y.

YOUNG, G. O., Buckhannon, W. Va.
YOUNGKEN, HEBER W., Philadelphia, Pa.

Z.

ZEIGLER, W. H., Charleston, S. C.
ZIEFLE, MR. AND MRS. A., Corvallis, Ore.
ZOELLER, E. V., Tarboro, N. C.

The Sixty-eighth annual Convention of the American Pharmaceutical Association was held in the New Willard Hotel, Washington, D. C., May 6–10. The American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy held meetings May 5 and 6, and a joint session with the Section on Education and Legislation on Monday, May 10.

The following are the officers for 1920–1921 of the American Pharmaceutical Association:

President, C. Herbert Packard.
Honorary President, John F. Hancock.
First Vice-President, E. Fullerton Cook.
Second Vice-President, Charles E. Caspari.
Third Vice-President, W. P. Porterfield.
General Secretary, William B. Day.
Treasurer, Henry M. Whelpley.
Reporter on the Progress of Pharmacy, H. V. Arny.
Editor of the Journal, E. G. Eberle.
Chairman of the Council, Charles H. LaWall.
Vice-Chairman of the Council, Charles E. Caspari.
Secretary of the Council, A. G. DuMez.
Local Secretary, to be elected, meeting to be held in New Orleans, September, 1921.

The nominees for President are: S. L. Hilton, Washington, D. C., Henry Kraemer, Ann Arbor, Mich., and Charles W. Johnson, Seattle, Wash.

AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES.

The following officers were elected by the American Conference of Pharmaceutical Faculties for 1920–1921:

President, W. J. Teeters.
Vice-President, W. H. Zeigler.
Secretary-Treasurer, Theodore J. Bradley.
Chairman of Executive Committee, R. A. Lyman.

THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

The National Association of Boards of Pharmacy elected Charles Gietner of St. Louis, President, and eight regional vice-presidents in accord with the regulations approved last year. H. C. Christensen was re-elected secretary, and retiring president W. R. Jarrett is Chairman of the Executive Committee.

THE UNITED STATES PHARMACOPOEIAL CONVENTION.

The closing work of the U. S. Pharmacopoeial Convention was ended and the revision of another Pharmacopoeia begun during the week of May 10. The officials of the last convention left a record of which they may well be proud. The address of President H. W. Wiley was in many respects a masterpiece; that of Chairman Charles H. LaWall a complete resumé of the work of the Revision Committee of 1910–1920, and there was added an additional feature to the opening formalities by including a forethought and outline of plans for the next revision by Secretary E. Fullerton Cook.

The reports of Chairman J. H. Beal of the Board of Trustees, Secretary H. M. Whelpley and Treasurer S. L. Hilton, were up to the quality expected, having been prepared with the care and thoroughness that characterizes the work of these officials.

The retiring president, Dr. Harvey W. Wiley, is succeeded by Dr. Reid Hunt of Harvard; the new chairman of the Revision Committee is E. Fullerton Cook, and the secretary ,Charles H. LaWall.

U. S. P. REVISION SUB-COMMITTEES.

No. 1—*Scope (Admissions and Deletions).*—Dr. H. C. Wood, *Chairman;* H. G. Barbour, W. A. Bastedo, George M. Beringer, H. A.

Christian, A. R. Craig, A. G. DuMez, C. W. Edmunds, Bernard Fantus, M. H. Fussell, L. P. Hamburger, Robert A. Hatcher, E. R. Hodge, Reid Hunt, Charles H. LaWall, I. E. Leonard, L. G. Rowntree, Leonard A. Seltzer, Torald Sollmann, E. R. Stitt, W. H. Zeigler.

No. 2—*Therapeutics and Pharmacodynamics (Posology).*—Dr. Torald Sollmann, *Chairman;* W. A. Bastedo, M. H. Fussell, H. C. Wood.

No. 3—*Bio. Assays.*—Dr. C. W. Edmunds, *Chairman;* J. F. Anderson, H. G. Barbour R. A. Hatcher, E. M. Houghton, Reid Hunt, G. W. McCoy, Paul S. Pittenger, W. H. Zeigler.

No. 4—*Biological Products and Diagnostical Tests.*—Dr. G. W. McCoy, *Chairman;* J. F. Anderson, C. W. Edmunds, E. M. Houghton, P. S. Pittenger, E. R. Stitt.

No. 5—*Botany and Pharmacognosy.*—Prof. Henry Kraemer, *Chairman;* C. L. Alsberg, C. A. Dye, E. N. Gathercoal, E. L. Newcomb, W. O. Richtmann, Albert Schneider.

No. 6—*Proximate Assays.*—Prof. Charles E. Caspari, *Chairman;* A. R. L. Dohme, F. R. Eldred, L. D. Havenhill, C. W. Johnson, E. A. Ruddiman, W. L. Scoville.

No. 7—*Inorganic Chemicals.*—Prof. H. V. Arny, *Chairman;* C. L. Alsberg, Theodore J. Bradley, C. E. Caspari, A. H. Clark, F. R. Eldred, L. D. Havenhill, C. B. Jordan, C. H. LaWall, B. L. Murray, George D. Rosengarten.

No. 8—*Organic Chemicals.*—Dr. Geo. D. Rosengarten, *Chairman;* H. V. Arny, C. E. Caspari, A. H. Clark, A. R. L. Dohme, C. W. Johnson, C. B. Jordan, B. L. Murray.

No. 9—*Reagents and Test Solutions.*—Prof. Charles H. LaWall, *Chairman;* Theo. J. Bradley, F. R. Eldred, B. L. Murray, F. W. Nitardy, Geo. D. Rosengarten.

No. 10—*Volatile Oils.*—Dr. W. O. Richtmann, *Chairman;* C. L. Alsberg, A. R. L. Dohme, E. N. Gathercoal, C. W. Johnson.

No. 11— *Fluidextracts, Extracts, Tinctures.*—George M. Beringer, *Chairman;* J. M. Francis, L. D. Havenhill, E. F. Kelly, F. W. Nitardy, E. A. Ruddiman.

No. 12—*Waters, Solutions, Spirits, Syrups, Elixirs.*—Prof. W. L. Scoville, *Chairman;* Geo. M. Beringer, John Culley, C. A. Dye, Bernard Fantus, E. F. Kelly, E. A. Ruddiman, L. A. Seltzer.

No. 13—*Cerates, Ointments and Miscellaneous Galenicals.*—Dr. Jacob Diner, *Chairman;* A. H. Clark, John Culley, C. A. Dye, J. M. Francis, E. F. Kelly, L. A. Seltzer.

No. 14—*Tables, Weights and Measures.*—Prof. Theodore J. Bradley, *Chairman;* C. E. Caspari, Jacob Diner, A. G. DuMez, C. B. Jordan.

No. 15—*Nomenclature.*—Dr. A. G. DuMez, *Chairman;* A. R. Craig, Bernard Fantus, Henry Kraemer, E. L. Newcomb, Albert Schneider, E. R. Stitt, H. C. Wood.

JUNE AND JULY STATE PHARMACEUTICAL ASSOCIATION MEETINGS.

Alabama, June 16, at Mobile; President, Julian F. Spearman, Anniston; Secretary, W. E. Bingham, Tuscaloosa.

Arkansas, June 16–18, at Little Rock; President, W. C. Hogan, Atkins; Secretary, Miss Mary A. Fein, Little Rock.

Colorado, June 22–24, at Manitou; President, A. B. Tipple, Pueblo; Secretary, Chas. J. Clayton, Denver.

Delaware, June 3, at Wilmington; President, Wm. B. Jester, Delaware City; Secretary, Nora V. Brendle, Wilmington.

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Maryland, June 29–July 2, at Braddock Heights; President, David R. Millard, Baltimore; Secretary, E. F. Kelly, Baltimore.

Massachusetts, June 23–24, at Swampscott; President, Charles C. Hearn, Quincy; Secretary, Jas. F. Guerin, Worcester.

Michigan, June 8–10, at Grand Rapids; President, C. E. Wilkinson, Lansing; Secretary, Frank J. Wheaton, Jackson.

Mississippi, June 8, at Jackson; President, C. L. Anding, Flora; Secretary, A. S. Coody, Jackson.

Missouri, June 8–11, at Excelsior Springs; President, H. C. Smith, Carrollton; Secretary, H. M. Whelpley, St. Louis.

Nebraska, June 15–17, at Omaha; President, Orel Jones, Oconto; Secretary, J. G. McBride, University Place.

New Hampshire, June 24–25, at New Castle; President, Charles E. Dubort; Secretary, Eugene Sullivan, Concord.

New Jersey, *Golden Anniversary*, at Newark, June 7–11; President, Edward A. Sayre; Secretary, Jeannot Hostmann, Hoboken.

New York, June 21–25, at Alexandria Bay; President, Robert S. Lehman; Secretary, Edw. L. Dawson, Syracuse.*

North Carolina, June 22–24, at Asheville; President, G. R. Pilkington, Pittsboro; Secretary, J. G. Beard, Chapel Hill.

Pennsylvania, June 22–24, at Harrisburg; President, Robert P. Fischelis; Secretary, Louis Saalbach, Pittsburgh.

Texas, June 15–17, at Dallas; President, Sam. P. Harben; Secretary, W. H. Cousins, Dallas.

West Virginia, June 10–11, at Huntington; President, John C. Davis, Wheeling; Secretary, P. H. Kelley, Thurmond.

Wisconsin, June 22–25, at Elkhart Lake; President, A. F. Mentzel, Milwaukee; Secretary, E. G. Raeuber, Milwaukee.

Montana, Third week in July, at Helena; President, John W. Seiden, Lewistown; Secretary, J. A. Reidel, Boulder.

Ohio, July 20–23, at Cedar Point, President, Charles E. Roseman, Cleveland; Secretary, Theodore D. Wetterstroem.

Oregon, July 13, at Portland; President, J. C. Perry, Salem; Secretary, A. W. Allen, Portland.

Tennessee, July 13–15, at Knoxville; President, H. M. Oliver; Secretary, D. J. Kuhn, Nashville.

Virginia, July 13–15, at Natural Bridge; President, D. E. Seagle, Pulaski; Secretary, A. L. Winne, Richmond.

THE PHARMACIST AND THE LAW.

STATEMENT REGARDING COLLECTION OF TAX ON TOILET ARTICLES, PROPRIETARY MEDICINES, ETC.

To avoid apparent confusion in the minds of the public regarding the collection of the tax on toilet articles and proprietary medicines, the Bureau of Internal Revenue has issued a statement advising both dealers and purchasers that the tax of 1 cent for each 25 cents or fraction thereof of the amount paid is on the article itself and not on the total amount paid by the customer when two or more such articles are purchased, unless of the same kind and put up by the manufacturer in a single container for sale as an original package.

For example, if a tube of tooth paste costs 35 cents and a bottle of perfume 65 cents, the tax is 2 cents on the tooth paste and 3 cents on the perfume, a total of 5 cents and not 4 cents as computed on the total amount paid by the purchaser.

If toilet powder sells at 10 cents a box, the tax is one cent; if two boxes are bought the tax is two cents, although the total amount paid by the purchaser is 20 cents; and if three boxes are bought for 25 cents, the tax is 3 cents. If, however, six boxes of toilet powder selling singly at 10 cents each are put up by the manufacturer in a container or sealed package for sale as a unit and are sold by the dealer as an original package for 50 cents, the tax is 2 cents, the package being the unit of sale.

The regulation providing that where two or more packages of cough drops are sold for 25 cents the tax shall be 1 cent is revoked, the tax being at the rate of 1 cent for each 25 cents or fraction thereof of the amount paid for a single package.

Instructions to advise dealers that the tax shall be collected in accordance with this ruling have been sent to collectors of internal revenue. The public is requested to coöperate in the proper collection of the tax.

AMENDMENT OF T. D. NO. 3020.

"Every person, firm, or corporation making application for registry or re-registry in any class, except classes 1 and 2 (see Art. 21), must on December 31 preceding the date of his application, or any date between December 31 and the time of applying for such registry or re-registry, prepare under oath or affirmation, in duplicate, an inventory of all narcotic drugs and preparations (see Arts. 139 to 142), on hand at the time of making such inventory. The inventories must be prepared on Form 713, copies of which may be obtained from collectors upon request, and if the taxpayer is engaged in more than one of these classes of business, a separate form of inventory must be prepared for each class in which he is registered. Class 5 registrants are not required to make an inventory of preparations or remedies exempt under Section 6, but they are required to make an inventory of all non-exempt narcotic drugs and preparations in their possession on the date

of application or inventory of any date between December 31 and the date of making such application. The original inventory must be kept on file by the maker and the duplicate forwarded to the collector. Collectors will refuse to register any applicant in Class 3, 4 or 5 who fails to furnish a copy of the inventory as required."

The above modifies Article 12, Regulation No. 35. Renewal of registration must be made not later than July 1, of each year. The modification has been made to relieve resulting hardship, if registrants were required to make inventories on the date of forwarding their applications.

TREASURY ISSUES INSTRUCTIONS FOR TRANSFER OF NARCOTIC CONTROL AFFAIRS BY REVENUE AGENTS.

Revenue agents in charge are directed to turn over all narcotic cases and other narcotic files to supervising federal prohibition agents in whose geographical department they are located at the earliest practicable date. Collectors of internal revenue are directed to forward all narcotic cases and other narcotic files (including closed cases), except cases or other narcotic matters which are pending and which under the provisions of the above mentioned mimeograph are to be handled by them until completed, to the supervising federal prohibition agent having jurisdiction over their territory. Upon their completion the closed cases should also be forwarded to the supervising federal prohibition agents. It is especially desirable that the supervising federal prohibition agents be furnished with the entire narcotic file since the inception of the original act of December 17, 1914, in order that these officials may have the benefit of the experiences of those who previously handled the cases.

Unless the taxes and penalties incurred in delinquent cases under the Harrison Narcotic Law are paid in advance, in which event they must be reported on the list in advance, collectors will observe the instructions of the office as contained in Ac. Mim. 1655, October 27, 1917, article 16. The same effort should be made to collect penalties in advance where the same have been incurred, and the excuse offered for failure to file return in time is not, in the collector's opinion, a reasonable cause for delinquency.

All papers relating to liabilities incurred under the Harrison Narcotic Law should be forwarded to this office, whether return is filed or not, in advance of assessment lists, if possible, in order that they may receive proper consideration and be prepared for final disposition when the list is received. In cases of first delinquency, where the 25 percent penalty is due, the taxpayer should be written an admonitory letter and informed that a second delinquency may subject him to specific penalty in addition to the 25 percent penalty for engaging in business without filing a return as required by law.

In case of a second offense, in addition to being required to pay the special tax with 25 percent penalty, the delinquent should be called upon for a written explanation and reported to this office for doing business without payment of tax. The supervising federal prohibition agent or the collector in all cases should include his recommendation, and is hereby specifically instructed to make a full report of the facts to this office. If upon review of the case in this office the excuse is deemed to be not acceptable the supervising federal prohibition agent or the collector, if the original report was made by him, will be so informed, and the violator should then be advised of the privilege of submitting an offer in compromise of his liability, which offer, it is believed, should be between $10 and $25 in proportion to the gravity of the offense.

BOOK NOTICES AND REVIEWS.

Laboratory Manual of Elementary Colloid Chemistry. By Emil Hatschek. 131 pages and 20 illustrations. P. Blakiston's Son and Company, Philadelphia. Price, $2.00 net.

Though books on colloid chemistry give, with more or less detail, descriptions of processes for making many preparations, there is no laboratory manual available, according to the author, such as has been found indispensable in the teaching of other phases of chemistry; and the present work is an attempt on his part to supply accurate and detailed directions for carrying out the fundamental operations of colloid chemistry, for making a number of representative preparations and for examining them by standard methods.

In the selection of processes and operations the aim has been to provide for the wants of those students of numerous branches of science who are finding some training in colloid

chemistry a necessary part of their equipment, yet are able to devote only a limited amount of time to acquiring its technique. The field of usefulness of the book is not limited to such, for there are given for the benefit of those who wish to delve deeper into the subject a large number of references to recent literature.

Chapter I is devoted to apparatus, materials and procedure, and the remaining eighteen chapters to Dialysis, Suspensoid Sols, Suspensions, Organosols, Emulsoid Sols and Gels, Egg Albumin Sol, Emulsions, Ultrafiltrations, Optical Methods of Examination, Cataphoresis, Electrolyte Precipitation of Suspensoid Sols, Mutual Precipitation of Suspensoid Sols, Protection, Viscosity Measurements, Adsorption (Qualitative Experiments), Capillary Apparatus, Determination of an Adsorption Isotherm, the Liesegang Phenomenon.

While it would seem impossible to adequately cover such a wide field in 131 pages the author has succeeded remarkably well, the book being singularly free from chaff and packed solid with good grain. In consequence of this fact, and because there seems to be no other book of the kind on the market, it should meet a cordial reception.

F. P. STROUP.

NEW PUBLICATIONS.

Chemical Calculation Tables. By Horace L. Wells. 2nd Ed., Revised. John Wiley & Sons, Inc., New York. Price, $1.35.

Creative Chemistry. By Edwin E. Slosson. 311 pp. Century Company, New York City, 1919. Price, $2.50 net.

Organic Chemistry: Laboratory Manual of Organic Chemistry. H. L. Fisher. 8vo. 331 pp. Price, $2.25. John Wiley & Sons, Inc.

Reagent Chemicals: Standards and Tests for Reagent Chemicals. B. L. Murray. 8vo. 400 pp. Price, $2.00. D. Van Nostrand Co., New York.

Oil Analysis: A Short Handbook of Oil Analysis. A. H. Gill. 9th Ed., revised. 215 pp. Price, $2.50. J. B. Lippincott Co., Philadelphia.

Aids in the Commercial Analysis of Oils, Fats and their Commercial Products. By George Fenwick Pickering. viii + 129 pages and index. 8vo. Philadelphia, J. B. Lippincott Company, 1917.

Technical Handbook of Oils, Fats and Waxes. Vol. II—Practical and Analytical. By Percival J. Fryer, F.I.C., F.C.S., Chief Chemist and Director, Yalding Mfg. Co., Ltd., Lecturer in Oils, Fats and Waxes at the Polytechnic, Regent St., W. London Institute, and Frank E. Weston, B.Sc. (1st Hons.), F.I.C., Head of the Chemistry Dept., the Polytechnic, Regent St., W. xvi + 314 pp. 69 figures. Cambridge University Press, London, England, 1918. Price, $4.50.

Utilisation des Algues Marines. Par Camille Sauvageau. Professor in the Faculty of Science, Bordeaux. 12mo., 356 pages, bibliography, contents, indexes and 26 illustrations. Paris, Gaston Doin. 9 francs.

Pasteur: The History of a Mind. By Emile Duclaux, late member of the Institute of France, professor at the Sorbonne and director of the Pasteur Institute. Translated by Erwin F. Smith and Florence Hedges, pathologists of the U. S. Department of Agriculture. Philadelphia: W. B. Saunders Co.

PUBLICATIONS RECEIVED.

The Supplement to the United States Naval Medical Bulletin. Published for the information of the Hospital Corps of the Navy. Issued by the Bureau of Medicine and Surgery, Navy Department, Division of Publications, Captain J. S. Taylor, Medical Corps, United States Navy in charge. Edited by Lieutenant Commander H. H. Lane, Medical Corps, United States Navy.

1919 Year Book of the Paint, Oil and Drug Reporter. A tabular presentation of production, distribution, prices of commodities, imports and exports, in the Reporter markets, together with price comparisons of quotations, since the signing of the armistice, as well as related matter having to do with the conduct and development of business since the war ended; with special analyses of the movement of some of the more important commodities, and a general resumé of all markets which the Reporter represents.—*Paint, Oil and Drug Reporter,* 100 William St., Publishers.

Chemical Products. An illustrated booklet issued by the Monsanto Chemical Works, St. Louis. An item of particular interest, at this time, is the reference to the snythetic camphor plant now in process of construction. The statement is made that the output will be large enough to be sufficient for most needs.

Two Years of Faulty Taxation and the Results. By Otto H. Kahn. The author states that the result of faulty taxation is writ largely in the high cost of living, industrial and economic dislocation, and social discontent—though, of course, not the sole cause of these conditions.

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